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TRANSACTIONS

OF THE

MANCHESTER STATISTICAL SOCIETY.

UNIVERSITY

SESSION 1898-99.

AND INDEX.

JOHN HEYWOOD,
DEANSGATE AND RIDGEFIELD, MANCHESTER;
29 & 30, SHOE LANE, LONDON, E.C.

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JOHN HEYWOOD,
DEANSGATE AND RIDGEFIELD, MANCHESTER,
29 & 30, SHOE LANE, LONDON, E.C.

*** The writers of papers are alone responsible for the statements of fact, and for the opinions contained in their respective communications.

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On Town Beauty.

By the Very Rev. Dr. L. C. Casartelli, President.

Read November 23rd, 1898.

I.

In submitting this essay to the Society, I cannot but feel conscious of the very large claim it must make upon the indulgence and patience of the members, on account of both the subject with which it deals and the manner of treatment adopted. The impartial critic will very likely feel constrained to say that a large dose of good-will is necessary to make it pass muster in the proceedings of a Society whose very title shows it to be above all things statistical. Shall I be too daring if I venture to seize upon "that blessed word" Statistics itself, and, claiming for it a breadth and expansion comparable to that of Mesopotamia, seek therein some justification for presenting such an address? If I seek support from the philologists, I find on the one hand no less an authority than Littré giving me but scant assistance. Not only does he define our science as the one "qui a pour but de faire connaître l'étendue, la population, les ressources agricoles et industrielles d'un état";* but he goes on to derive the name from the Greek verb στατίζειν, "établir," clearly pointing to what may be called the arithmetical or mathematical side of the science. On the other hand, it is consoling to find that the greater number of our authorities, including Mr. W. Hooper, the able writer in the *Encyclopædia*

Dictionnaire, t. iv., s.v. "Statistique."

Brittanica, support what I believe must be the only true derivation, that, namely, "from the Latin *status*, which, in the so-called Middle Ages, had come to mean a 'State' in the political sense," with the addition, "Statistics therefore originally denoted inquiries into the condition of a State."* Furthermore, it is at least highly probable that the name of the science is derived from the name of the person "statist," as denoting one who pursues such inquiries into the conditions of the State or social body. Hence M. Maurice Block tells us that "it is no exaggeration to say that Statistics have existed ever since there were States." The anonymous writer in another standard work of reference gives a still broader definition: "The branch of political science which has for its object the collecting and arranging of facts bearing on the condition, social, moral, and material, of a people."†

If my hearers are surprised at my having said thus much on a preliminary topic, I must at once confess that I am seeking for some colourable excuse from authorities for the subject I am about to offer for consideration. And it will scarcely be denied, as I venture to think, that æsthetic conditions, even if of quite secondary importance, are still not altogether without their value, and exercise decided influence upon the lives of aggregations of population.

My distinguished predecessor in the presidential chair, in his admirable inaugural address two years ago, discussed with statesmanlike breadth and grasp the sanitary problems of our town life.‡ The problem which I wish to touch upon is, in the literal sense, infinitely less a *vital* one; yet I venture to think it is not altogether undeserving of our interest and even serious attention.

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* *Encyclp. Britt.*, vol. xxii., s.v. "Statistics."

† *Chambers's Encyclopædia*, vol. ix., s.v. "Statistics."

‡ *Transactions* of the Society, Session 1896-7: "Some Aspects of Local Government, by G. H. Pownall.

II.

Cowper's well-known line in *The Task*,

"God made the country, and man made the town,"*

has become a common-place in our days, not so much in the moral sense, as perhaps with the idea that the country is the home of beauty, whilst the very idea of the town is suggestive of all that is unlovely and sordid. Yet it was not always so. Indeed, in the New Testament, the beauties of heaven, which we nowadays should probably be rather inclined to depict under the form of lovely country landscape, are figuratively described under the form of a city, whose symmetry of construction, the splendour of whose edifices, whose gates and walls, whose wide streets with their flowing streams of water and lines of trees—glimpses of architectural glory, borrowed perhaps from the traditions of some of the great capitals of the ancient world—are employed by St. John in his Revelation as figures of the heavenly Jerusalem†—St. Augustine's "Civitas Dei," or, as Longfellow has quaintly Englished it, "God's great Town." Here, then we have the city actually taken as the very type of beauty, an idea strangely at variance with our modern feelings and traditions. The change has come about from historical reasons, and, broadly speaking, I may perhaps sum up these reasons in the formula that the city tends to lose its tradition of beauty in proportion as it ceases to be the dwelling-place of man. It is with the city as with the garments—the *raison d'être* of the beauty which adorns the one or the other is the indwelling of the man.

I would like here to call attention in some detail to one of the most interesting and valuable essays of Mr. Frederic Harrison in his collection of historical sketches,‡ and, at the risk of being tedious, will venture to summarise that remarkable essay, so instructive on the subject we are discussing.

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* The same poet wrote: "God the first garden made; and the first city Cain."—(*The Garden.*)

† See *Apoc.*, chaps. xxi., xxii.

‡ *The Meaning of History*, chap. viii., pp. 233—264. (London, Macmillan, 1894.)

You will remember that Mr. Harrison describes four typical cities, the Ancient, the Medieval, the Modern, and the Ideal. Looked at from the æsthetic point of view, he reminds us of the immense significance of the city and of city life to the Ancients, at least to the Greeks and the Romans; for it must be remembered that to the Athenian, the Corinthian, the Syracusan, the Roman, the city and the State were identified. To the free-born citizens of these ancient cities, which were also States, very much like the Italian and Flemish cities of the Middle Ages, "the city itself was country, school, academy, university, museum, playground, club, all at once." In ancient Italy and Greece all considerable cities were in beautiful sites and beautiful themselves, with a wealth of architectural monuments. "There were no museums, because the city, its temples and forum, were a continuous museum, open at all times." Moderate in extent—Mr. Harrison remarks that whilst no Greek city exceeded in size York or Edinburgh, even the largest cities, like Rome, could be walked round in an afternoon—the ancient city was the real home of all classes of the citizens, noble and plebeian, rich and poor, almost all known to one another at least by sight, and all sharing in a common civic life. The opulence and generosity of the rich and noble were lavishly displayed in the æsthetic adornment of the common home, in which, thanks, of course, to the climate, so much of both public and private life could be passed in the open air. The ancient Greek and Roman city also was distinguished for its cleanliness. To defile the city, to pollute its earth and streams, was an outrage not only on patriotism, but even on the local religion, which gave the city a kind of sacredness. The Roman aqueducts and baths still testify to this healthy love of public and personal cleanliness among the Ancients.

Passing now to the typical city of medieval Europe, we find the conditions absolutely changed. The exigencies of feudalism, the constant warfare between even the smallest fragments of the body politic, turned the city into a fortified town; it was

no longer, except in a few parts of Italy, a little nation, but "a stronghold of empire or barony, only a big and very complicated castle." Cooped up within fortress walls, light and air were to a large extent excluded, and the outside prospect of the beauties of nature was almost entirely shut out. Yet the change had its compensation. In these medieval towns sprang up our municipal systems of self-government, which have contributed so largely to the growth of popular liberties. These towns developed "a noble spirit of civic life and energy, an ever-present love of art, zeal for good work as good work, and a deep underlying sense of social duty." From the æsthetic point of view, with which alone we are concerned at present, quite a new influence had arisen which made these medieval towns veritable storehouses of beauty, though in quite a different sense to the cities of the ancient world spoken of above. This new influence was the Christian Church. Let me here venture to quote one of Mr. Frederic Harrison's most eloquent passages:—

"Painting, fresco, mosaic, stained glass, gilding, carved statues, coloured marbles, images and reliefs in thousands, chased gold and silver utensils, bronzes, ivories, silks, velvets, tapestries, embroideries, illuminated books, carved wood, bells, clocks, perfumes, organs, instruments, choirs of singers—every beautiful and delightful thing was crowded together. . . . . So, too, the Church was morally a far nobler thing than the [pagan] Temple. It was no mere colonnade for procession, lounging, and society. It was this, but much more also. It was school of art, museum, music-hall, place of personal prayer, of confession of sin, preaching, teaching, and civilising. It combined what at Athens was to be sought in Parthenon, Theseum, Theatre, Academus, Stoa, and Agora—and very much besides that was never known at Athens at all."*

Turning now to a comparison of these cities of the past with the modern towns of our own days, the eloquent writer whose essay I have been quoting sums up both the advantages and disadvantages on our side which a comparison shows. He admits, justly enough, the vast improvement in the death rate, owing to

* *Op. cit.*, p. 217.

hygienic and sanitary reforms; our public institutions, he tells us, surpass those of the ancient or medieval world; some of our great cities, such as Manchester and Glasgow, possess a water supply which may be compared with, if it does not surpass, that of Ancient Rome. Yet great is the change for the worse which has come about in our city life. "Our civilisation is rather national than civic." And Mr. Harrison does not hesitate to say that our cities are in "a lower stage of organic life; almost entirely bereft of any religious, patriotic, or artistic character as a whole." Much public spirit exists, but this Mr. Harrison holds is not generally associated with the city as such; on this point I think that we in Manchester could point to some notable and even brilliant exceptions to the writer's dictum. Of course, the causes of change are to be sought in the industrial and economical history of the past century. The modern town, the essayist says, grows up too quickly. Its denizens are constantly changing, and but few generations now live in one and the same town. The rapid growth of suburbs, the happy hunting-ground of the speculative builder, has turned the modern city into "an amorphous, amœba-like aggregate of buildings," which change so rapidly, that to one returning after twenty-five years' absence, all landmarks seem to have gone, and thus few cities retain their individuality. Some, he thinks, like Liverpool, Manchester, and Glasgow, have become too big to make true cities—though by comparison Paris still remains an organic whole. London, of course, is infinitely too vast and too "flabby" for the ideal city.

I feel that I owe an apology for the length of these quotations and for this summary of Mr. Frederic Harrison's essay. But though the work is doubtless well known to most of my hearers, there may be some to whom it is less familiar, and who may be glad to have their attention called to what is not only a brilliant piece of writing, but still more a study well deserving the serious attention of all of us who are to greater or less extent dwellers in cities.

III.

After these preliminary considerations of a general character, I will now invite your attention to our own city. Few, if any, will deny that much of the unloveliness so graphically sketched by the writer I have been quoting is only too characteristic of our *fin-de-siècle* Manchester, which some modern novelists are fond of quoting as a very type of what is ugliest in modern industrial towns.* Without, however, allowing ourselves to fall into rhetorical exaggerations, we need not hesitate to express very considerable dissatisfaction with our city from the æsthetic point of view. It may be well to clear the ground by inquiring into the causes which have operated to make Manchester unlovely. Of these we shall find some to be inevitable, others capable of remedy in the future; some due to nature, others to man.

1. In the first place, then, the very position of the town on a great plain, its consequent flatness of site and almost entire want of relief, seriously handicaps Manchester from the point of view of beauty. If we think for a moment what the accidentation of surface has done for our neighbour Liverpool, and contrast, say, the site of St. George's Hall with the finest site of any of our own public buildings, we shall realise what we lose, and that without hope of remedy, in the way of possible picturesqueness and dignity. Or take Bradford, or others of the Yorkshire and East Lancashire towns, and see what a hilly surface, affording not only diversity of prospect in the town itself, but often also extensive views across surrounding valleys and upon neighbouring hills, can do to beautify even a modern industrial centre, with its unlovely, monotonous mills and factories and its hideous chimneys. All such advantages of site nature has refused to us.

2. Closely connected with the above, and, of course, traceable

* "All that springs from commerce must be vile. Manchester is the ugliest place on earth, and the money of every individual cotton spinner serves to multiply the original ugliness—the house he builds, the pictures he buys,"—say the "wicked baronet," in *Evelyn Innes*, by George Moore. (T. Fisher Unwin, 1898.)

to the same geological causes, is the absence in the immediate proximity of the city of such cheap and abundant supplies of building stone as are afforded by the hillside quarries of a more mountainous region. Hence, instead of the neatness, solidity, and comparative cleanliness and brightness of stone buildings, private as well as public, cottage as well as mansion, of towns in hilly districts, the dismal, grimy, sordid brick of so large a proportion of our vast inhabited area.

3. And if the solid earth treats us so ungenerously, neither does water lend us her charms to brighten and beautify our city. No fine, wide river cuts athwart our crowded area—no Trent, or Thames, or Ouse. No broad estuary and port like that which freshens the atmosphere and adds dignity and charm to the site of Liverpool, but a few miles off. Far less the open sea, with its healthful breezes and ever-varying panorama of grandeur, such as lies spread out before seaside towns; no Bay of Naples or Sydney—not even a Solent or a Douglas Bay. We have not even the less ambitious, yet still very real charms of a town of canals—not very hygienic, perhaps, but undoubtedly with a quaintness and a picturesqueness all its own—a Venice, a Bruges, or an Amsterdam.

4. And if Nature has been thus chary of her charms, or rather lenied them to us almost entirely, man has been busy to spoil and destroy even what little has been allowed us. I suppose there once was a time when certain undulations of ground in Manchester were rendered appreciable to the eye, when cornfields clothed the slopes that dipped down to the trout-bearing Medlock, and then rose up again towards rustic Ardwick, and when the May blossom accentuated and lent gaiety to the winding hill of Gaythorn. But in these, as in other more or less accidented portions of the town, the entire covering over of the surface with buildings and pavements has almost obliterated the effect of undulation, and certainly deprived it of any æsthetic value. Similarly, the small winding streams which once beautified the present municipal area, whose Keltic names are said to preserve

some echo of their long-lost charms, have been reduced by industrial pollution to mere gutters of ink and mud. But, above all, the air, once bright and light and healthy for vegetation, has been soaked with chemical bye-products and with coal smoke, until it has not only defiled all our buildings and masked their beauty with carbon, but also chokes up the pores of trees and plants, and makes it impossible for them to live. Here, then, we have a direct outcome of the unprecedented industrial developments of our century.

5. Another result of the same cause has tended not so much to destroy the beauty of the city, as rather to destroy on the part of the citizens interest in and motive for the æsthetic aspect of their town. The very conditions that have spoiled landscape, stream, and air have also driven out further and further, first into suburbs, and then into the country, all who could afford to fly from the gloom and dirt of town to brighter and more beautiful surroundings. This is a process ever going on with increasing velocity. Business people have practically ceased to live in the town. It is becoming daily more and more a huge workshop, from which the toilers hurry away, as soon as ever their work is done, to more congenial dwelling-places. One inevitable effect must be a loss of interest in a place which is no longer a home—a loss of that personal attachment, that civic pride which marked the citizens of the ancient and medieval city. In this respect Manchester compares very unfavourably with many even of the busiest cities—notably London, which is still so largely a residential city.*

We may now proceed to inquire whether there be any hopes of at last a partial æsthetic regeneration of a town like ours, and whether it be possible to suggest any means towards that end?

* "London has this advantage over Manchester and other large towns in England, that great numbers of educated and well-to-do people who are free to choose their dwelling-places make it their home, and have a direct interest in making it beautiful, whereas other cities are more generally regarded as places in which it is only necessary that it should be possible to carry on business comfortably for a certain number of hours a day, and which, like theatres, should be provided with ample and speedy means of exit."—*Manchester Guardian*, 23rd November, 1898.

To say that nothing can be done towards making such towns less unlovely would be to yield to the counsels of despair; such counsels as, I fear, would be given us by no less an authority than Mr. John Ruskin, who, speaking of architectural beauty in cities, writes:

"All lovely architecture was designed for cities in cloudless air; for cities in which piazzas and gardens opened in bright populousness and peace; cities built that men might live happily in them, and take delight daily in each other's presence and powers. But our cities, built in black air, which, by its accumulated foulness, first renders all ornament invisible in distance, and then chokes its interstices with soot; cities which are mere crowded masses of store, and warehouse, and counter, and are therefore to the rest of the world what the larder and cellar are to a private house; cities in which the object of men is not life, but labour, and in which all chief magnitude of edifice is to enclose machinery; cities in which the streets are not the avenues for the passing and procession of a happy people, but the drains for the discharge of a tormented mob, in which the only object in reaching any spot is to be transferred to another; in which existence becomes mere transition, and every creature is only one atom in a drift of human dust and a current of interchanging particles, circulating here by tunnels underground, and there by tubes in the air; for a city, or cities, such as this no architecture is possible—nay, no desire of it is possible to their inhabitants."*

In spite, however, of Mr. Ruskin's eloquence and authority, I do not think we need be tempted to despair of, at least, arousing some desire to ameliorate the æsthetic conditions even of our industrial northern towns; and the chief object of the present paper is nothing more than to stimulate, if possible, interest in the question, to invite discussion and suggestion, rather than to put forward any new or comprehensive scheme of reform. And, for the purpose of being more practical, I will confine my remarks to Manchester itself.

* "The Study of Architecture," in *On the Old Road*, i., 277.

IV.

1. The first preliminary must, of course, be to create or at least stimulate the desire for better things, the æsthetic as distinct from the merely utilitarian and business interest. Even though we should not actually dwell within the city, but merely use it for a few hours on week-days as a place of business, we should at least wish to see even so temporary a place of sojourn beautiful and pleasing to the eye. And in addition to the personal gratification of a refined taste, we might hope to cultivate that civic patriotism, that *pietas* towards our own town, with its historical associations and traditions, which would lead us to desire to see it beautiful for its own sake, even as the citizens of the ancient Greek cities, of Rome, or of Florence desired to see their cities beautiful. The great development in recent years of art teaching, the efforts being made to introduce the love of the beautiful into the education of our children, the work being done by institutions like the Ancoats Art Museum or the Whitworth Gallery, together with the general growth of education and culture, may, I think, be trusted to foster the spirit we desire.

And at least we can hope that occasionally æsthetic considerations may obtain a hearing, even when they do not altogether square with those of a more utilitarian character. To take but one example: Perhaps it is not yet too late to appeal to our municipal rulers to think twice before still further disfiguring our streets by a system of over-head electric wires for tramcar traction, which may have many economical and utilitarian advantages, but which, bad enough in a beautiful town, are simply deplorable in one that has little to boast of in the way of appearances.

2. Supposing, then, general interest aroused in the æsthetic improvement of the city, the question next occurs: What practical steps can be taken towards that end? It is certain that such conditions as depend upon Nature herself—configuration of surface, or absence of sea or great river—are beyond the power of man to modify. As regards water, indeed, it has

occurred to me that in a city like this much more use might be made of fountains—not one or two puny fountains that never play, but a number of really monumental structures, with a constant and abundant water supply, such as adorn Rome or Paris. This would cost money; but is Manchester less wealthy than many a foreign city whose fountains excite our admiration and envy?

It is probable, again, that future improvement in methods of combustion, the extension of electricity, and stricter legislation may yet do a great deal to purify our atmosphere. Whether this will ever be to such an extent as to render it possible to grow trees and plants within the town area, and so form real boulevards, is, I dare say, open to grave doubt. All the more readily, therefore, may we offer a word of gratitude and appreciation to those citizens who of late years have striven to give our streets and squares some share of verdure by what have jocosely been termed "tub-forests," but which, whatever good-humoured banter they have evoked, are nevertheless deserving of hearty recognition from all who care for the comeliness of our town.

3. But when all these palliatives of our natural disadvantages—and they are nothing more—have done their best, the great truth remains to be faced, that the real beauty of a city depends upon its architecture. And here I may venture to recall the teaching on this head of the master whom I have but recently quoted only to disagree with. Mr. Ruskin very truly says:

"We are forced, for the sake of accumulating our power and knowledge, to live in cities; but such advantage as we have in association with each other is in great part counterbalanced by our loss of fellowship with Nature. We cannot all have our gardens now, nor our pleasant fields to meditate in at eventide. Then the function of our architecture is, as far as may be, to replace these; to tell us about Nature; to possess us with memories of her quietness; to be solemn and full of tenderness, like her, and rich in portraitures of her; full of delicate imagery of the flowers we can no more gather, and of the living creatures now far away from us in their own solitude. If ever you felt or found this in a London street . . . . it is well to promote the building of more like them."*

* *Stones of Venice*, vol. i., chap. xxx., sec. 6.

V.

Good architecture is, then, of supreme importance, nowhere more so than in Manchester, where, natural beauty failing us, we are thrown back entirely upon the resources of art.

Have we made the best use of our opportunities in this direction? I am bold enough to confess that I think not. Indeed, I fear that in this matter of good architectural taste we fare badly in comparison with many other towns of our own country. My honest impression is that, whilst Manchester stands *facile princeps* among English towns in the art of music and in musical taste, she is very far from the front rank in what concerns the plastic arts, and notably architecture. Our neighbour, Liverpool, seems to supply the means of comparison. And I must confess that, whilst the sister city appears to me far behind Manchester in all that relates to music, I have a strong impression that she is far ahead in both architecture and the other plastic arts. A comparison not only of the respective art galleries, but also of the public interest in and appreciation of painting and sculpture, in the two towns, is all in favour of Liverpool; whilst it needs but a walk around the streets of both to convince the unprejudiced observer that for good, dignified, and appropriate architecture, as well as for the general effect of grouping of buildings, the city of the Mersey has again a great superiority over our own. It is not that our buildings are not as elaborate and as expensive, but they seem to me to lack, on the whole, the correctness, the good taste, and the imposing effect which those of Liverpool display. No doubt exception will be taken to the views here expressed, but I will make bold to maintain that Manchester city architecture as a whole—though with many notable exceptions—is in need of a reform.

Good architecture, it seems to me, requires to satisfy three chief conditions:—

1. Correctness and beauty of style.

2. Suitableness to environment.

3. Harmony of grouping.

On each of these heads I will venture a few remarks, with an occasional reference to the authority of John Ruskin.

1. As regards style in architecture *versus* mere "originality," Ruskin has some excellent remarks:

"A day never passes without our hearing our English architects called upon to be original, and to invent a new style; about as sensible and necessary an exhortation as to ask of a man who has never had rags enough on his back to keep out cold, to invent a new mode of cutting a coat. Give him a whole coat first, and let him concern himself about the fashion of it afterwards. We want no new style of architecture. Who wants a new style of painting or sculpture? But we want *some* style. It is of marvellously little importance, if we have a code of laws, and they be good laws, whether they be new or old. . . . . And in like manner, it does not matter one marble splinter whether we have an old or new architecture, but it matters everything whether we have an architecture truly so called or not; that is, whether an architecture whose laws might be taught at our schools from Cornwall to Northumberland, as we teach English spelling and English grammar, or an architecture which is to be invented fresh every time we build a workhouse or a parish school. There seems to me to be a wonderful misunderstanding among the majority of architects of the present day as to the very nature and meaning of originality, and of all wherein it consists. . . . . Neither originality nor change, good though both may be—and this is commonly a most merciful and enthusiastic supposition with respect to either—is ever to be sought in itself, or can ever be healthily obtained by any struggle or rebellion against common laws. We want neither the one nor the other.*

It seems to me that, putting aside a limited number of really excellent specimens—at the head of which I should place our Post Office—our Manchester buildings, as a rule, suffer from want of style and too great "originality." Indeed, this "originality," too often developed into absolute eccentricity, violating many of the elementary canons of correct taste, obtrudes itself painfully on the observer, and that often in the case of

* *Seven Lamps of Architecture*, chap. vii., secs. 4, 5.

some of the most pretentious buildings. It would seem as if our architects were often lacking in a proper artistic training, and had not been formed upon the study of the best models at home and abroad. This would seem to imply the need of better technical education in this particular line. Good taste can be generated only by the study of the products of good taste. And more than this, it would imply the need of a more correct taste for the best work in the public at large, for if the public would not tolerate that which is incorrect and tawdry, and always demanded real architectural style, we may be sure the supply would soon follow the demand. This points to a regeneration of public taste in these matters, the means towards which we cannot now discuss.

2. By "suitableness to environment" I refer chiefly to conditions of air and climate. Our local meteorology and the condition of our atmosphere here come into play. Hence styles of architecture, which may be exceedingly beautiful in themselves and admirably suited to more favoured localities, may be inappropriate in a town like ours. Our city is often veiled beneath a canopy of smoke; the atmosphere is impregnated with chemical products; it is moist; and rain, though not exceedingly abundant, is frequent. The result is that new buildings become rapidly blackened with deposits of carbon: acids, combined with rain or the moisture of the atmosphere, tend to eat away certain kinds of material; and elaborate tracery, carvings, and similar ornamentation become mere traps for soot and grime, which tend to choke them up and obliterate them. The comparatively limited supply of sunshine, again, tends to render buildings, whose windows are not large and unencumbered, gloomy inside during considerable portions of the year. These circumstances seem to point to the desirability of edifices with large plain surfaces, bold features, sober ornamentations, large windows, admitting a maximum of light; in other words, to a more general use of classical and Italian styles of architecture, not as being superior in themselves to other styles, such as Gothic,

but as being in these modern times more suited to our climate and our atmosphere.

A word of commendation may here be added of the growing use in recent years of bright red terra-cotta for buildings, which certainly gives a warmth and brilliancy that are acceptable in our own somewhat dingy town, and is not so liable to be blackened as stone. I dare say a liberal use of coloured glazed terra-cotta and majolica for decorative purposes, such as are associated with the names of Della Robbia in medieval Italy and Doulton in modern England, would also be of advantage in our atmosphere.

3. Lastly, in town architecture there is to be considered not merely the individual edifice, but the harmony of groups and agglomerations of buildings forming a whole. Once more I ask your forbearance for a final quotation from Ruskin, who says:

"When you buy a print, the enjoyment of it is confined to yourself and to your friends. But if you carve a piece of stone, and put it on the outside of your house, it will give pleasure to every person who passes along the street—to an innumerable multitude, instead of a few.

"Nay, but, you say, we ourselves shall not be benefited by the sculpture on the outsides of our houses. Yes, you will, and in an extraordinary degree; for, observe farther, that architecture differs from painting peculiarly in being an art of *accumulation*. . . . . The sculpture on your friend's house unites in effect with that on your own. The two houses form one grand mass, far grander than either separately; much more if a third be added, and a fourth; much more if the whole street—if the whole city—join in the solemn harmony of sculpture. Your separate possession of pictures and prints are to you as if you sang pieces of music with your single voices in your own houses. But your architecture would be as if you all sang together in one mighty choir.

"In the separate picture, it is rare that there exists any very high source of sublime emotion; but the great concerted music of the streets of the city, when turret rises over turret, and casement frowns beyond casement, and tower succeeds to tower along the farthest ridges of the inhabited hills—this is a sublimity of which you can at present form

no conception; and capable, I believe, of exciting almost the deepest emotion that Art can ever strike from the bosoms of men."*

Any regulation of this question of harmony or symmetry is, of course, of extreme difficulty, owing to the impossibility of interfering with the rights and liberty of property owners, so that, except in the case of municipal buildings, little can be hoped for except from a general improvement of the public taste and the formation of a school of better architecture. Much may be done, however, by way of stimulation in these directions. The head of one of the most important municipalities of Europe has devoted considerable attention to the problem; and I will risk wearying your patience by briefly analysing the little brochure, "The Æsthetics of Cities," published a few years ago by M. Ch. Buls, the able and enlightened Burgomaster of Brussels, as I dare say this thoughtful study of the question is little known in this country. Although chiefly applicable to a city so unlike our own as Brussels is, it yet contains much that is well worthy of the attention of our municipal rulers, especially in what concerns the re-modelling of the older portions of the town.

M. Buls begins by referring to the rapid growth of great cities, and the consequent necessity of great alterations of streets, squares, and open places, and asks whether in all these matters some regards should not be had to æsthetic considerations. "Were we Americans," he says, "we should not have these scruples"; a pencil and a foot-rule suffice to design a town laid out in straight lines and right angles. But our old towns are living organisms, not mathematical crystallisations. Then, in a series of brief chapters, he discusses point by point the various factors of which account should be taken. He deprecates excess in alterations of the existing plan of a town; he shows us that in many cases straight rectangular streets are not necessary, and not even desirable from the æsthetic point of view. Again:

* *Lectures on Architecture and Painting*, ii., sec. 49.

"One danger which architects apparently have not sufficiently avoided is the tendency to consider their plan from the bird's-eye view perspective. Bending over their paper, they seek after symmetries of which nothing at all can be seen when the newly-formed district is visited. . . . . It is the horizontal view which ought chiefly to occupy our architects, and not the bird's-eye view, which can only be appreciated by aeronauts hovering over the city."*

From the æsthetic point of view he tells us:

"We should not hesitate to make a street deviate from the straight line, or even to cut through a group of houses, if by this means we can secure a view upon a church tower or some interesting monument. The choice of such a point of vantage requires a fine taste." (Page 15.)

Furthermore, the size of open spaces about great buildings requires to be regulated according to style. Whilst Gothic buildings require not to be too isolated, classical structures, on the other hand, demand a much larger open space to be seen to advantage, and their symmetrical proportions are better seen at a distance. Apply this canon to our noble Post Office—a lamentable instance of fine architecture lost for want of proper surroundings.

Closely connected with the purely æsthetical is the archæological standpoint, and M. Buls would have us be careful not to neglect this in the case of cities with any pretence to history. Once more, to preserve some monument of historical interest he would have us not hesitate at a deviation in the course of a street, and whilst bitterly lamenting much that has been unnecessarily destroyed of old Brussels, he has nothing but praise for the municipalities of Valencia and Nuremberg, for the manner in which they have treated their respective cities:

"Municipal authorities too often allow themselves to be persuaded to destroy remains of ancient buildings. They imagine that their preservation does not offer enough interest to justify the expense of their preservation. One or the other building, taken individually, may excite very slight interest; but we must not forget that it is the *tout*

* *Æsthetik der Städte*, p. 10. I regret to have at hand only the German translation of M. Buls' pamphlet by Ph. Schäfer (Giessen, Roth: 1898.)

ensemble which gives a town its artistic appearance. . . . Let us, then, carefully preserve these witnesses of the past—reminders of olden days and customs. They at the same time serve to adorn our streets with picturesque *motifs*." (Pages 20, 21.)

On reading these lines, I was struck with the idea: Who, looking at Manchester, could ever believe that it is an old Roman town, with an unbroken history down to the present day? Certainly no visible trace of its history athwart the ages has been preserved to us. And I must confess that it was with some pangs of regret that I lately watched the ancient locality and the very name of Aldport Town, perhaps the last link with the past, disappear, swallowed up by a huge industrial expansion. And I could not help wondering whether, if M. Buls had been at the head of our civic government, he would not have devised some plan of preserving an enclave of such historical value, even in the midst of a gigantic work of modern engineering.*

I need say little of M. Buls' chapters on squares and open spaces, and upon tree-planting in towns. The latter subject I have touched upon before, and in the present condition of our atmosphere it is not a very practical one. Nor need I delay on his lamentations over the modern suburb, with its "banal dulness, the absolute meaninglessness of its great, monotonous streets and quarters, laid out only from the point of view of land speculation." (Page 27.) But a word may be said about his conclusions. Speaking of public buildings, he comes to pretty much the same results as Mr. Ruskin. He warns us: "You cannot create a new style deliberately or to order. The styles of architecture have been slowly evolved, whilst imperceptibly adapting themselves to the requirements of materials, use, and climate." (Page 38.)

* I confess it is rather wandering outside of my subject, but I cannot refrain from also asking whether any Continental town would have shown so little care as we have done, not only for historic spots, but also for those sacred to the memory of great citizens of whom they were proud; and would have left without any indication whatsoever for succeeding generations the dwellings, or at least the site of the dwellings, of men like Thomas De Quincey, Charles Hallé, and J. P. Joule—to quote only three instances? John Dalton has at least got a street named after him.

Such are some of the problems I have attempted to put before the Society. I do not claim for them the urgent importance of many of those questions, moral, social, educational, industrial, which occupy our attention on more serious occasions than the present can pretend to be; very far from it. They are æsthetic questions, and therefore at best of secondary rank. Still I think they are not altogether unworthy of our attention. Nor do I venture to propound any schemes for practically effecting what I have suggested as desirable. I am content to raise the questions which wiser and better minds may perhaps be tempted to discuss. I shall be satisfied if I have aroused some interest in the topic of "beauty in our town," and in the creation of a public taste and desire for better things than we have now got. It would be Utopian to hope for very great changes; but, as it is always best to have very high ideals to aim at, I would like to put before the Manchester citizens an ideal picture for the twentieth century, which I will once more borrow as a quotation—in a paper already too full of quotations—from Mr. Frederic Harrison, and with that I will conclude:

"The citizen of the future will live in a city through which silver streams will flow, in which the air will be spotless of soot, where water will bubble forth in fountains and reservoirs at every corner, where gardens, promenades, open squares, flowers, green lawns, porticoes, and noble monuments will abound; the air and water as fresh as at Bern, with gardens and statues as plentiful as they are at Paris, and more beautiful in art. . . . . These things are not to be had by Acts of Parliament. Ideals are realised slowly, by long efforts, after many failures and constant mistakes."*

* *The Meaning of History*, p. 263.

MANCHESTER STATISTICAL SOCIETY.

Feeble-minded Children.

By Miss Mary Dendy.

I feel considerable doubt as to my capacity for putting before you properly the question which forms the subject of my paper to-night. There is material in it for the study of a lifetime, and I am still a learner; I have not yet been definitely at the work for quite two years. But I understand that there is to be a discussion after I have finished, and I am expecting to pick up a good many useful hints from that. In any case, your invitation was an opportunity I could not neglect, seeing that it is of the most vital importance to our community that feeble-minded children should be effectually dealt with. It would have been easy to me to compile a mass of statistics to lay before you from blue books and other sources; indeed, there is one blue book (Report and Evidence of the Departmental Committee on Epileptic and Defective Children. Two vols.) on the subject which is very interesting, but it is accessible to any one who cares to pay 8d. a pound for it and to fill up his leisure hours with it for a good many weeks. To me the facts concerning our own town are the most important, and I will try to give you those, at the end of my paper, as compactly as possible.

I will roughly divide what I have to say under these headings:—

1. What feeblemindedness is.
2. The cause of feeblemindedness.
3. Its connection with crime and pauperism.

4. The possibility of putting an end to it.

5. The state of things with regard to this matter in Manchester, and the steps that have been taken.

First, with regard to what feebleness of mind is: It appears to be extremely difficult, even to scientific experts, to define the difference between feeble-minded children and merely backward children on the one hand and between feeble-minded children and idiots or imbeciles on the other. At least, it is difficult to lay down a rule which shall apply to all cases, though an expert will be able to decide in individual cases. For this reason, the final decision as to the destination of any child dealt with by public means, should be that of a skilled medical man. For instance, we may find in the same school, two children, both backward, both dull, both slow to obey the word of command, both in bad physical condition. It is not easy at once to say that one child is feeble of mind and the other not. But we may, on more careful inspection, find that child No. 1 is really wanting in mental power, that there is some malformation of the brain, that it is rickety. It will, perhaps, be unable to answer a simple question rationally; it will "echo"—*i.e.*, repeat the question asked, instead of answering it; its speech will be defective, and at 7 or 8 years old it will be talking "baby talk"; very probably examination will show that the roof of its mouth is abnormal, the palate being exceedingly high and narrow. Or it may be very talkative and excitable, without any of the natural shyness of a child, pouring out a flood of information as to its home and its doings to any stranger who will give it an opening. I do not mean that these are all the defects observable on even a slight examination, or that they all occur together; but they are characteristic. The one defect most generally common to feeble-minded persons is great weakness of will power; this naturally is not so observable in the young child as in the adult. In children we are apt to note extreme obedience as a virtue, without considering of what cause it is the consequence. There are also feeble-minded children who are cunning or

obstinate, and there is a whole class where the feebleness consists in the total lack of the moral sense, and this also may not show itself in the child excepting under careful observation. I shall have occasion to speak of these later on.

Child No. 2, may be equally low in the school, may look equally ill and dull, but, as soon as you begin to question it, you find that its response is natural enough; there is nothing abnormal about it; it is in a low standard because it has attended school irregularly, and it is ailing because it is neglected at home. We cannot deal directly with such children as these. Nothing could be more dangerous than to interfere with their parents' responsibility for them. To help them, even with free meals, is to make things worse for them at home.

To take the other extreme. So far as I can gather, lunacy is an acute and sometimes curable form of brain disease. Idiocy and imbecility and feeblemindedness are chronic and incurable forms of brain disease. We have nothing to do with lunacy. With regard to the dividing line between imbecility and its milder forms, dulness and deficiency (or feebleness of mind), Dr. C. Mercier says that it is the ability to earn a living. I do not think this quite holds good. The ability to earn a living depends partly on circumstances extraneous to the individual. Many feeble-minded persons who are, when left to their unassisted efforts, quite helpless, can earn a living, or partly earn a living, when *under constant supervision*. Their weakness of will makes them obedient to any suggestion; they can be trained to make use of all the faculties they possess, and, naturally, those faculties, though they cannot be made normal, can be greatly strengthened. Thus in good hands many of them become nearly self-supporting, whilst in bad hands they are self-destroying. Dr. Kerr, of Bradford, who has given great care and much study to the feeble-minded children in the special classes under the Bradford Board, says that it is characteristic of the boys that, though they can do some kinds of work and generally find situations when they leave school, they never keep their places,

and are always on the streets. On the other hand, at Scott House, at Hitchin, founded by Miss Scott, the sister of Mr. C. P. Scott, an average of 20 girls earn no less than £228 per annum towards their own support. There is no reason to suppose that youths of the same type will prove less capable under efficient direction. So Dr. Mercier's test seems to be hardly a reliable one.

The worst grade of idiot and imbecile, such as are partially cared for at the Royal Albert Asylum (for non-paying patients for a period of seven years between the ages of 6 and 21), is easily distinguished. These poor creatures often cannot dress or feed themselves, and their abnormalities are apparent even to the untrained eye. Dr. Telford Smith tells me that there are few who do not improve to some extent under the wonderful training and treatment of that splendid establishment, and now a few of the girls (forty) will have a further chance. Instead of being turned out at 16, or when they have completed their seven years, they will be drafted into the beautiful home Sir Thomas Storey has just given to the asylum. The best of these idiots are of a lower type than the worst of the feeble-minded children.

But the feeble-minded child varies very much—the same child may seem to be on one day quite idiotic and on another to be merely dull; such children are, for example, peculiarly susceptible to the influence of the weather. For some of their whims there is no accounting. I have seen a child who would not speak for a week together, and would then for a time behave quite reasonably. Here again we need the skilled physician, to say whether a child should be sent to an idiot asylum or left amongst the "border-line children," if we may call them so, for whom I am anxious to see provision made. For we must remember that, whilst the law can interfere in behalf of the certified lunatic, or idiot or imbecile, or of the deaf mute or blind child, it cannot at present help the feebleminded.

These children all need special instruction, suited to their individual capacities. There are a great many of them, generally

about 2 per cent of the school-going population. There are, of course, many degrees of feebleness of mind amongst them. Some of them ail little more than sheer timidity and nervousness. They get labelled stupid early in their school life, and they take their own stupidity for granted. We are all familiar with the cry of the healthy child: "I can do it myself." "I can't" is the cry of these helpless little ones. They need to be shown, as in the special classes they are shown, that they can. Then the joy of achievement and the praise that should follow it stimulate them to fresh efforts, and progress is often made which could not be thought of in an ordinary class where a child can have only the sixtieth part of a teacher's attention. These best cases can often, after a time, be returned to an ordinary school. From them to the worst is a long step, but even the worst can be taught decent habits and orderly ways.

I fear I have left the question as to what feebleness of mind is—where it merges into imbecility at the lowest point and into dulness and backwardness at the highest—very vague. I can only plead that, so far as I know, no scientist has arrived at a correct and satisfactory definition of the term, and that each case must, for treatment, be judged separately. I should say that Americans include *all* weak-minded children under the term "feeble-minded"—idiots and imbeciles, as well as those of a higher grade.

2. As to the cause of feeblemindedness, it is, in the main, undoubtedly heredity. It has been urged as a reason against doing anything for persons of this type, that, if we let them alone, they would die out. Unfortunately, that is not so. They die young, it is true. The average life of an idiot is only twenty. The feeble-minded seem to be short-lived in proportion to the degree of their mental weakness. It is rarely indeed that children who are weak in mind are strong in body. There seems to be a connection between congenital deaf mutes and these children. They are peculiarly susceptible to disease, particularly consumption, and succumb more readily than normal persons to

epidemics. But a great number of them live to have families, and their offspring are generally more feeble in every way than themselves. This would point to the conclusion that they would die out in course of time, but, unfortunately, they are not left to themselves, the strong and bad mix with the weak and mad, and so the horrible story goes on. It is no wonder our workhouses, gaols, and asylums are full to flowing over. In some cases women of this class have very large families. In a little German pamphlet by Professor Grossman, called "How Does a Child become a Criminal?" I found some very startling figures the other day. Amongst other cases, he gives two in particular. In the first, five sisters had 540 descendants, of whom 76 per cent were criminals and 20 per cent paupers. In the other, one criminal woman had 623 descendants, of whom 200 were criminals, and the rest for the most part idiots, drunkards, and worse. Of course, isolated and accidental cases occur, as any medical man could show, but generally the disease is passed on from parent to children, either with or without marriage. There is no woman guardian who could not tell us of cases of poor little feeble-minded girls lying in the workhouse wards with their infants. It has not been possible for me as yet to get at the family history of all the feeble-minded children I have seen, but very often when the parents put in an appearance their statements bore out the theory of heredity.

A question constantly asked me is whether feeble-mindedness in the offspring were the result of drunkenness in the parents. It does not appear to be so. I waded through another German pamphlet the other day, which aimed at proving that it was so. But its author hardly made out his case, and Dr. Ireland, dealing with this question in his new book on the "Mental Diseases of Children," p. 7, draws attention to the fact that in Norway there has been of late an increase both in insanity and idiocy, and this in the face of the statement that drunkenness has much decreased in Norway owing to the working of the Gothenberg system. Of course, persons of feeble mind get drunk, if they are

not carefully tended, just as they do every other bad, harmful thing. And this brings us to the third division of my paper.

3. The connection between feebleness of mind and crime and pauperism. You will remember that I alluded to one form of mental feebleness which consisted in a total lack of any moral sense. It appears to me, but this only from personal observation, that these children are generally more robust than the average deficient child; also they are frequently fairly acute in some directions; but they have not any feeling of right as right and wrong as wrong. They can learn to abstain from acts which bring upon them immediately painful consequences, but they are quite without shame for wrong-doing which does not involve 5s. and costs or a fortnight, or its equivalent. The first case of this kind I came across was about six years ago. It was that of a girl of seventeen or eighteen, whose moral life was—well, she had no moral life. I talked to her, tried to persuade her, but could not help seeing that my words did not touch her anywhere. So long as the police did not get her, what did it matter? I might just as well have talked to an infant in arms. I went to see her mother, but *that* was very little use; the mother was a deaf mute. Again, one of the children Dr. Ashby saw was a moral imbecile. I had her on my list; she was a fairly well-grown, rather pretty girl, well up in the school. Between the time of my seeing her and Dr. Ashby's inspection she had been stealing, both at the Art Museum and at the school. Except a rather restless expression in the eyes, she had no marked physical peculiarity. Yet it was quite evident she was "not all there." She was quite proud of her misdemeanours. Dr. Ashby said "that a judge and jury would laugh at him if he told them that this girl was not responsible for her actions, and yet, if no one intervened, she would inevitably join the criminal classes within a few years." At present, the only means taken towards saving her were that her mother flogged her. Then she "slept out," being afraid to face the floggings, and was found in the streets at night, and was taken home. Such cases as these are by no

means uncommon. It will always be a peculiarly difficult thing to deal with the moral imbeciles; but there they undoubtedly are, and it is most important to recognise that they do exist and account for some proportion of our criminals. But a much greater number is accounted for by our feeble-minded children, whose weakness of will leaves them at the mercy of every evil-disposed person who chooses to make use of them. Quite recently I saw in the police court reports in the *Guardian* an account of a woman (in London, I think) who was convicted for the fortieth time. It was added that she was of feeble mind. Again, one of three lads taken up for attempted train-wrecking was well known to be of feeble mind. Briefly, what happens is this: A boy leaves school quite unable to take care of himself; very often the one wholesome guiding influence of his life ceases with his schooldays, for often it happens that his parents are very slightly stronger of mind than himself. Their one notion is to make him earn money for them. He knows no skilled work, and cannot keep a situation if he gets one. Then he comes upon the streets, sells matches, shoe laces, papers, and generally ends by turning up in gaol. By this time he has become used to a vagrant life, and as he can only move along the path of the least resistance, and as it is made so much easier for him to go wrong than right, he goes on doing wrong, and becomes a confirmed criminal. So he grows up through a pitiful and degraded youth to a pitiful and degraded manhood, and dies, leaving behind him offspring to carry on the horrible tradition.

With the girls the evil is more obvious, though not more real. For this reason more attempts have been made to help girls than boys; though the boys are in the proportion of three to two girls, there are thirty-five homes for feeble-minded girls in England, and only two for boys, other than paupers. It has been estimated that three-fourths of the prisoners in our gaols are of feeble mind. Not all parents, however, are neglectful of their feeble-minded children. In accidental cases, where the parents are respectable, they do their best for them; try to

keep them at home, or in good situations with kindly employers. Of course their rate of wage must always be lower than that of normal persons, and probably tends to lower the rate of wage all round.

4. Now, as to the possibility of putting an end to this terrible evil of our society—an evil on which so many other evils hang—it can certainly be done if people will face the question boldly, and aim at stopping it in its source. Ultimately the law ought to deal effectually with it, and some sort of provision should be made equivalent to the Custodial Homes of America, to which a feeble-minded woman can be consigned for life. In the meantime something must be done by private effort, and very thoroughly done, so as to show Parliament the way when it really begins to take action. A step in the right direction was taken in the establishment by various School Boards for special classes for dull and defective children. Leicester was the first to do this, then London; they are also in existence in Bradford, Birmingham, Brighton, Bristol, and Leeds. These classes are taught by specially-trained kindergarten teachers. No teacher ought to have more than fifteen scholars; and perfectly suitable teachers having been selected, they ought to be given a free hand, so far as possible, so that they may develop each child along the most promising line. Defective children differ from each other just as much as they differ from normal children, or as much as normal children differ from each other; and, as they lack some one or other of those characteristics which are common to all normal children, they suffer more than these from being forced into a routine which is to serve for all. It was specially recommended by the Departmental Committee, which sat to receive evidence concerning dull and defective children and epileptics, that the school age for the former should be raised to sixteen. That would be a great boon; it would mean keeping them two years longer off the streets. It is the business of School Boards everywhere to see that there are classes established in properly-constructed buildings, and

efficiently taught and managed. Especially it is desirable that children should be admitted to them only on the recommendation of a skilled medical man or woman. In London one of each has been appointed to this work, and the London Board has been particularly fortunate in securing the services of Dr. Shuttleworth.

Granted, however, that the special classes are started everywhere, and that they are worked in the most efficient way possible, still, after the children have passed out of them, there remains something to be done. There will always be a considerable number who are quite unable to guide and guard themselves, and these ought to be detained for life. Given a proper place to put them in, this is by no means a difficult thing to do. They are so weakly, that if they are caught fresh from school, before they are habituated to a street life, they will be easily managed by anyone who will take the trouble to dominate them. They are generally very affectionate, and readily attach themselves to their teachers and rulers. It is only in this way that the evil can be cured—by preventing it.

5. A Special Committee of the C.O.S., which sat in 1875, summed up as follows: "After the period of training a few may be discharged as cured, and will become merged in the mass of the population. A large number may be employed, as they often are now (employments specified at home, in asylums, etc.). But, *after making all these deductions*, a large proportion of the young persons who have passed through the training schools will prove unfit to be restored to society, even under these modified conditions, and for these adult custodial asylums must be maintained, at which they may be permanently cared for in the most economical manner, with the advantage of constant medical supervision. But such is the sustaining, healing influence of regular employment, that even the adult asylums ought, as far as possible, to be managed on the principle of industrial establishments, having gardens, farms, and workshops of various kinds connected with them, to one

or other of which every patient capable of doing anything should be attached. Such a system, properly carried out, would diminish the expense of the institutions.*

6. And this brings me to the state of things in Manchester, which is at present as bad as it can be, excepting that people are beginning to awaken to the facts of the case. The population of Manchester is estimated by the Officer of Health to be 541,296. One-sixth of this number represents the number of children who should be on the books of Public Elementary Schools. There are at present rather more on the books in Manchester, namely, 100,322. Of these, 44,463 are in the Board Schools. The remainder, 55,859, are in Denominational and British Schools—the Denominational Schools being Church of England, Roman Catholic, and Wesleyan. I will ask you to bear in mind that the children with whom we are concerned to-night are Board School children, and include all those who, by reason of mental or physical defect, are incapable of being properly taught in ordinary elementary schools, and yet are neither deaf mutes, nor blind, nor imbeciles. These last three classes of children are already provided for, more or less efficiently, according as the law is well or ill administered. Here, in Manchester, the blind and deaf are well looked after. The idiots and imbeciles, I fear, more often escape notice; perhaps because the School Board has no direct jurisdiction over them, it is a difficult and troublesome matter to get them sent to an asylum, except through the agency of the Poor Law, and to make use of that agency pauperises the parents, even though they contribute to their children's maintenance.

No provision whatever has yet been made for the "dull and defective" or feeble-minded children, and their lot is, in many cases, a terribly hard one. The idiot is happily unaware of his pitiful difference from his fellows; but the merely feeble-minded child is often painfully conscious that it is not quite like other

* Quoted in Dr. Ireland's book.

people, and suffers sadly from the gibes and taunts of its schoolfellows, who, though kind enough to cripples whose physical weakness they can *see*, do not understand mental weakness, and very frequently take a delight in arousing an impotent rage, which is agony to their victims, and not without danger to themselves. Of one boy I was told that the children would call to him in the playground to say his prayers, and when he obeyed would mock until he was mad with passion. He had been seen to draw a knife on them.

I fear that telling you the history of the movement on behalf of these poor children in Manchester will involve my being rather egotistic, for I happened to be the person to whom it occurred that something might be done for them. You will, perhaps, remember that when Mrs. Scott resigned her seat on the Manchester School Board I was invited to take her place. It then became my pleasant duty to spend a good deal of time in our schools. I am in the habit of noticing children very minutely, and am very familiar with their little ways, and I soon found out that there were, in my schools, many boys and girls who were quite incapable of taking in the lessons given in the standards. They looked either dull and stolid, or feeble and delicate and downcast. If I told the class a story, they did not laugh with the others; they hung listlessly about in the playgrounds. In speaking to them I did not feel that they responded to what I said, as children usually do. It appeared to me that these children, passing through the schools without having acquired either knowledge or the power of self-direction, accounted to a great extent for adults such as that girl whom I mentioned, the daughter of a deaf-mute mother. I went to Mr. Wyatt for advice and assistance, and he put me in possession of the necessary information as to what was being done elsewhere. Then I consulted Dr. Woodcock, who gave me an introduction to Dr. Shuttleworth, late head of the Royal Albert Asylum. The latter, being an exceedingly busy man, has found time to give me advice which has been and will be invaluable.

The upshot of our consultations was that it seemed desirable that I should see, in their own homes, those children who were returned as incapable of going to school. It was not a very long list—47 cases in all—and I was fortunate in finding all the children but two. I forwarded my account of these cases to Dr. Shuttleworth, and he made notes on each case, suggesting what should be done with each child. Then my report and these notes were laid before the Board. I was much afraid of damaging my cause by anything that looked like sentimentality or exaggeration, so I gave the Board only the bare facts of the cases. Indeed, they were quite enough, and so it proved, to arouse the sympathy of my colleagues. Perhaps here I may tell you that the terrible sights I saw in my pilgrimage from house to house to see those suffering children made an impression upon me that I shall never forget. I knew, after that, that it would be impossible for me to rest until something was done to clear away this shameful blot from our town. I have seen many bad things here, but never, I think, anything that touched me so deeply—that appealed to my sense of justice so strongly as those helpless children left to perish in their misery. There was one little boy—a pretty little fellow—lying in a heap of filthy rags under a kitchen window. He had on only one little ragged garment. You see, parents such as this child's parents, often not of normal intellect, do not consider it necessary to dress their children if they do not expect the school attendance officer to call. He was blind; his mother said he was paralysed—both disqualifications for admission to the Royal Albert—while his feeble mental condition and paralysis (which I rather doubt) would, I believe, make him unfit for a blind asylum. But his intellect was by no means of the lowest grade. It was not at all a dull, little face that was turned to me when I spoke. Another boy was brought to me from a bed upstairs; he also was not dressed, and seemed too feeble, physically, to notice me. I do not think he saw me, he was blinking so from the unaccustomed light. His mental failing was said to

date from a fall; but two brothers, aged 23 and 14, were also defective. I do not think the mother was sane; it was a horrible house.

In another house, where was an imbecile boy, I found also his sister, a slightly deaf, feeble-minded woman of about 30, just confined of her third illegitimate child.

Here and there I found good and patient mothers, who did their best with their defective children, and seemed very grateful that anyone should be trying to do something for them.

The result of this report was that the Chairman, the Clerk, and myself were sent to London to see what was being done there. This we did. We saw some of the London classes, and interviewed the Departmental Committee then sitting. Next morning Dr. Shuttleworth took me through his beautiful private establishment at Richmond, and gave me an object lesson worth having. Then we presented our report to the Board. This was in July, 1897. But reports are not, in themselves, efficacious as a means of curing evils, though they seem to satisfy some minds. We seemed to stand still there, and I wanted something done. So I got Mr. Wyatt to plan out a scheme of visitation of all the schools for me, and I, with Mr. Burke, one of our attendance officers, went to every Board School, and I saw all the children, 39,600, in actual attendance. I think it best, in the first instance, to inspect the children at their work. They are not then likely to be specially nervous or unhappy. In speaking to those I selected I tried, as far as possible, to avoid making them the subject of remark, and spoke also to many normal children. Our plan was to go from class to class, each with a notebook. When I gave him a sign, Mr. Burke took down from the teacher the name, age, standard, and address of the child I had selected, whilst I made my own notes as to such defects as were visible to an untrained eye. We gave each child a number, and then, every evening, I combined the information we had gathered, and later copied every case, in its proper order, into books ruled for me at the offices. In this

way we took notes on 525 children. In many cases the teachers were able to point out children to me; in some they thought I wanted *all* children who were backward, no matter what the cause. Over and over again I was struck by the patience and kindness of the teachers in dealing with my little dullards. Everywhere it was evident how harmful the presence of these poor children was in the classes, particularly when they were mischievous or restless. It was necessary to speak with the children; though very often one can detect the "something wrong" by watching them, it is not always so. One girl was a very bright-looking child, rather small for her age, which was thirteen. I find Dr. Ashby's note on that case is "under-sized, bright-looking girl. Does not know her alphabet. Backward mind, more like a girl of five."

One curious detail that came out during this examination was the fact that the cases were very unequally distributed through the town. Thus, Lloyd Street, Hulme, had a very large number of cases, whilst at St. Matthew's, Deansgate, and St. Peter's, Bengal Street, there were very few. These last two schools accommodate some of our poorest and most backward children, and I expected to find a large number of cases in them Mr. Wyatt thinks the explanation may be that a great many canal-boat children go there, who, though they are backward through irregular attendance, benefit physically from being much more in the open air than many of our scholars.

This report took some time to prepare, and when I took it to the Board, naturally someone said that I could not know anything about it, and that very likely an expert medical man would reject two-thirds of the cases. That was quite true. I did not know; I only thought I knew. The thing to be done was to get an expert medical man to see my cases. Dr. Woodcock asked Dr. Ashby if he would help, and he consented to do the work himself. There the important part of the work comes in. Thanks to Dr. Ashby, the Manchester School Board will have such a fund of accurate information to begin with, when

it starts its special classes, as no other Board will have had. Dr. Ashby gave me 25 mornings in the schools—two hours a morning, besides going and coming. Moreover, he went to Bradford, and to Lancaster, and to Old Trafford to make quite sure that we were dealing with the right sort of children. I wish everyone could know the patience and tenderness, the quiet strength and wonderful insight which he put into those hours of laborious toil amongst our suffering little ones. He gave a written report on every one of 500 cases; each report written at the top of a separate sheet under the child's name, etc., so that further particulars may be added and notes made when the child has been for a time under special instruction. For this inspection the cases were grouped in convenient centres. I was furnished on visiting days with a list of the children to be seen, and went early to the first school to be visited to see that all were there, and that all was conveniently arranged; then Dr. Ashby came, and we worked straight on for as long a time as he could give. Sometimes I brought specially difficult cases up to his rooms in the afternoon. I should much like to give you particulars of many cases, but unless you wish it one must serve. We had tried one little fellow in every way, or nearly every way; his mind seemed quite blank. At last Dr. Ashby said: "I am not much of a hand with my pencil, but let's see what I can do," and he drew a duck swimming. The boy broke out, "Quack, quack." Hurrah!" said the doctor, patting him on the back. "Now you take the black-lead and draw a quack, quack." The boy produced a recognisable copy of the duck.

The examination was, of course, a very simple one—the reading of a few words, adding a few figures together, writing their names, and a word or two. Some could not face this; could not answer even simple questions, only "echoed," *i.e.*, repeated the question instead of attempting an answer. A great many talked baby-talk when they were long past the age for it. A great many could not write "a cat and a dog" on their slates. Cat appeared to be easier than dog, which was con-

stantly written God; but we got many variations, "act and God," "tac and God" being amongst them. In most cases the right letters were there, but the order of them was wrong.

Dr. Ashby summarised his results thus: "Out of 500 examined 214 were dull and backward (it being understood that the backwardness rose from the child's condition, and not from home condition); 276 mentally feeble, 4 deaf mutes, and six did not appear to be sufficiently behindhand to come under either of the above terms.

These children were 299 boys and 201 girls; 134 of them had defective speech in one form or another. There were sight defects in 17, and hearing defects in 22. Just about half-way through the examination the School Board election took place, and I lost my seat. I was, however, invited to finish my work with Dr. Ashby. It was finished at the end of January, and early in March Dr. Ashby presented his report. The Board has resolved to build two special schools to begin with, to accommodate 60 children each, and to be very perfectly planned. Very much can be done in these special classes; but when the best is done that can be done by day-school teaching (and that is all that the law, *as it now stands*, can give to these children) there will remain a large number little more able to take care of themselves on leaving school than on entering it. I find that of the 500 seen in school, 78 boys and 63 girls are so defective as to make it impossible that they can ever reach a normal mental standard. Of these four boys and eight girls are so imbecile that they ought now to be in an asylum. Of those excused school attendance there are 22 boys of this type, of whom 10 are asylum cases, and 11 girls of whom three are asylum cases.

We get thus a total of

100 boys of whom 14 are asylum cases.

74 girls of whom 11 are asylum cases.

These figures apply *only* to Board School children. There is reason to suppose that similar results would be obtained from an examination of the whole of the school-going population.

The asylum cases, of course, ought to go to an idiot asylum. Our concern is with those who are described in the last Report of the Commissioners in Lunacy as "Persons who are known as the feeble minded. They are not the subjects of such a degree of mental unsoundness as, in the opinion of the medical officers, renders them certificable in the present state of the law, and they are therefore unable to be detained against their will, although they are not sufficiently of sound mind to be able to take care of themselves."

This remark is quoted apropos of the home for 40 girls which Sir T. Storey has presented to the Royal Albert Asylum, and which is intended to carry on the education of 40 of the more intelligent of the idiots after they have finished their training in the asylum. The Report of the Royal Albert Asylum states, however, that the girls will still be under certificate, and will not be able to discharge themselves. They are, therefore, still idiots in the eye of the law, and do not come under the definition of feeble minded given by the Commissioners in Lunacy. The Storey Home will be a great boon, inasmuch as it will prevent a large number of partially-educated certificated idiots or imbeciles from being returned to their families. But the only way into that Home is through the Royal Albert Asylum, and it cannot help our feeble minded of Lancashire and Cheshire. We may take it that we had, last winter, in the Board Schools alone, 149 children for whom permanent care should be provided. We should have to double that number, at least, in order to get at the total in Board Schools, Denominational Schools, and British Schools. I have reason to suppose that, even then, we should not have considered all. I am afraid there are a great many feeble-minded children hidden away who are not reported upon by anyone.

Now, it is well known by those who have, in existing homes, undertaken the care of the feeble minded, that they can be easily detained. But we, in Manchester, have no place in which to detain them. When I finished my work with Dr. Ashby I

consulted him as to a scheme I had been turning over in my own mind for some time, for providing boarding schools for those children who, when they left the special classes, should still be a danger to the community and to themselves, and was glad to find that it met with his approval. Of course it would have to be carried out by private effort, and I hardly knew where to begin. I first obtained an introduction to Mr. Herbert Philips, and put my views before him. Then I saw Sir William Houldsworth and Mr. C. P. Scott. Sir William advised me to throw my scheme into such a definite form as could be easily laid before people. I did that, and took it to Dr. Shuttleworth, who, most kindly, went into every detail with me, to make sure that I had hit upon something practical. Then Mr. Rawson gave me 100 copies of the scheme, and I went to work to let people know, in the press and out of it, what I wanted done. It was not, however, a piece of work for one person, and I was glad when an accident gave me the opportunity I wanted for getting a committee together. I was asked to speak on the subject at Stafford House, and later the Duchess of Sutherland proposed to address a meeting in Manchester, if I would get one together, on October 26th. To arrange for this, I secured a small committee, consisting of the Dean of Manchester, Principal Hopkinson, the Rev. S. A. Steinthal, Miss Bertha Mason, Dr. Ashby, and myself. The meeting was held, and officers and a committee were appointed. I want to begin *work* this time two years. I am hoping two things will have happened by that time—that the special classes will have been at work some time, and that I shall be able, in an official capacity, to supervise them and to know the circumstances of the children in them; so that I shall be able to see such as need permanent care safely transferred from the day schools into the boarding schools, without any disastrous interval spent upon the streets. In the boarding schools we shall keep them, playing and working, so far as is possible, earning their own living; children all their lives, but happy, harmless children instead of degraded and dangerous ones.

For the proper carrying out of our scheme we want £20,000, £10,000 for building and £10,000 for endowment. It is a scheme that had better be left alone than done inefficiently, for one of our great objects is to show that it is possible for Government to take in hand a preventive measure which shall spare future generations much of the vice and misery and degradation which are amongst us now. It is a large sum to raise, but I am convinced it can be done. My donations so far have varied from 2d. to £200. Of course I am hoping for some larger sums, but I need not say how welcome the small sums are.

MANCHESTER STATISTICAL SOCIETY.

The Housing Problem.

By B. F. C. Costelloe, M.A., Chairman of the Local Government Committee of the London County Council and Member of the London School Board.

Read January 11th, 1899.

At the outset I ought to offer my apologies to the Statistical Society, not for the subject to which I venture to ask its attention, but for the paucity of the statistics with which I am able to illustrate it. I propose it, however, rather as a problem than as even an effort towards a solution.

It is an obvious remark that London is the centre point of social problems; and the experience of the London County Council during the decade now closing—for it is exactly ten years since we began to be the Central Government of the main area of the Metropolis—has made those of us who have been through it all more keenly alive than most men to the difficulties of urban life.

I need hardly tell a meeting of statisticians that the aggregation of human beings, which forms the capital of the British Empire, far exceeds in magnitude any such aggregation which exists or ever has existed since men began to live in society. The County Council area—the so-called "County of London"—

is by no means the whole Metropolis; yet it contains about as many people as Paris, Berlin, Vienna, and Rome put together. Neither Imperial Rome at its greatest, nor any modern civilised city, has had half our population. We are apt to forget that the area under the administration of the so-called County Authority has a population equal to that of Portugal, greater than that of either Sweden, Norway, or Switzerland, and twice that of Denmark or Greece, and approaches in its number of inhabitants the whole of Australasia or the Dominion of Canada. The Kingdom of Belgium is one of the most densely-peopled countries of the world, yet it has not many more people to deal with than the population of the real London.

Again, we have to remember that of this vast aggregate of human beings the vast majority are poor. According to Mr. Booth, a million and a quarter of them—say a fourth of the whole—are living below what he calls the line of poverty. Nowhere is it so difficult to estimate exactly the state of labour and wages and the real conditions of the life of the poorer working class. In a district like Manchester and its area work is comparatively regular. There are staple trades, and hands whose skill in them is—saving periods of depression—a constant probability of good wages. That is not true of the Metropolis. Wages are, in some relations, higher there than elsewhere—partly because living is dearer; and work is in a sense less likely to fail in London than elsewhere, for if there is not one thing to do there is another, so that the variations in the marriage curve are actually less violent in London than in England as a whole. But, nevertheless, work is wofully irregular, and a woful amount of the work there is, is casual, unreliable, hand-to-mouth employment. Partly for that very reason London is not a trade-union town. Its labour is to an appalling degree disorganised. A Labour Party, acting together as it does in some of the northern towns, is to me unthinkable in London.

The upshot of this is that the poorer workers have not the power they seem to have elsewhere to assert themselves and to

struggle—wisely or unwisely—for the improvement of their circumstances. Till the London County Council elections gave them a certain chance, they had drifted for generations at the mercy of a very chaotic state of things. I cannot stop to explain to you what that chaos was. To those who had had the full benefit of a reformed and popular municipality for more than half a century before the London County Council began, the state of Local Government in London must seem almost incredible. I will ask you only to remember that the ancient municipal powers which many towns have had since before the recorded beginning of English history, never existed in the Metropolis outside that square mile called the City, which is nowadays practically uninhabited after business hours. The London where the people have to be housed possessed, down to as late a date as 1855, no Central Government of any sort; so much so that the reform of that year was forced by the fact that there was no body in existence which could even lay down a main drain! The sole Government was the varying caprice, corruption, and incompetence of the Parochial Vestries, who had from 1750 to 1850 been obliged to pave the Statute Book with the oddest patchwork of private Acts of Parliament, as the only possible way of making head against the hopeless lack of the most elementary powers of control.

You will not understand—I cannot hope to make you understand—what this sort of anarchy meant in practice. You would not believe me if I were to tell you.

But you must bear in mind yet another difficulty indigenous to London before you will be in a position to estimate the urgency and the complexity of the Housing Problem, as it comes upon us now, in the fulness of time. I refer to the fact that London is a leasehold town; and of all the instances of that singular legal arrangement it is one of the most complex and unmanageable. There is a system I consider worse—a system of copyhold leaseholds in and about Clitheroe—but with that exception I know no system of tenure which I count so bad

as that in London. Roughly speaking, the bulk of the Metropolitan residential area is made up of parcels of land developed within the last 100 or 150 years by means of building leases. The original building lease was usually for 99 years, at a small ground rent, and subject to sufficiently strict covenants. In some cases, as in St. Pancras, this development of settled estates was again the subject of other private Acts of Parliament, which created local street trusts and special rates and other monstrosities, according to the sweet will of the proprietors, for in those days there was nobody whatever who could possibly watch or insist on the interest of the public. This original building lease soon became a valuable property as the town grew, and new leases were carved out of it—some for the balance of the term minus one day; others for lesser periods, say 60 or 50 or 40 years. The sub-lessees in time made other buildings and improvements, and new leaseholds arose under them; and finally you get to the occupying tenant, who holds for 7 years, or on a 3 years' agreement, or from year to year, or quarter to quarter, or week to week, as it may be. And when any important leasehold interest is near its end, there is always "the house-knacker"—a creature who gets into his hands the tail-end of a lease, which, if it remained in solvent hands, would entail large claims for dilapidations when the day of surrender came. But the house-knacker is a man of straw, whom it is vain to sue for dilapidations, and he devotes his whole mind to the rack-renting of his "slum" and to the ingenious avoidance of any sort of repairs, until the state of things induced by dirt and neglect—public and private—has produced a pretty imitation of a civic hell.

One important result of this tenure is that there is no time, during all the currency of the main lease, when there is anyone who is free and able to deal with the property as a master, or who can invest substantial sums with any reasonable prospect of getting the profit. Therefore whole areas fail to be improved or turned to newer economic uses, because they are in lease—

perhaps for generations together: and, on the other hand, whole estates fall out of lease about the same time—as has happened lately with the Cadogan Estate in Chelsea—and then there are sudden and enormous clearances, governed by no public considerations whatever. But there is even a worse result. The older building estates were laid out in streets, with decent back gardens running back to back to a mews lane, and with some open space or forecourt in front, facing a wide road. The leasehold system did not lend itself to a comprehensive re-building when that sort of house ceased to be required in that place. But it did lend itself to spoiling the road by building out a shop of one storey over the forecourt, and by building two fresh rows of dwellings to front on the mews lane, and in time adding sheds and workshops, so as to cover most of the space between.

You have only got to look out of the windows of any local train which runs overhead across East London, to see what this means in practice. It has created the East London domestic workshop—a fearful arrangement, whether you regard it from the point of view of ventilation, sanitation, or fire—and that institution has flourished without interference until our own day.

Finally, you must recollect, to avoid an easy misconception, that the original leases have in many cases been prolonged by avaricious tenants for life of settled land, by ingenious arrangements, amounting to an extension on a substantial fine or other capital payment—as happened notoriously in the administration of the Somers Town slums by the late Lord Somers. And when this happens the evident result is to postpone the chance of re-building or other general improvement, usually for another generation.

This is the state of things out of which and by which the Housing Problem I have to unfold to you has grown. It was necessary to explain the conditions, in order that the problem might be intelligible.

What, then, is the Housing Problem?

It is not merely that at least a million of Londoners—say a fifth—are housed now in a way inconsistent with what we understand by civilisation. The census figures as to overcrowding alone are terrific. The Medical Officer lately reported, as an index to the measure of "housing" required, the census figures of 1891—829,765 persons living in tenements of four rooms or less, occupied by more than two persons in a room, of which 214,843 persons lived in tenements of one room, and 330,238 in tenements of two rooms. The bulk of these, in his opinion, need in reality to be re-housed. There were, in that census, 128,000 persons (beyond the 214,843) who were living in tenements with only one room to each family, the families ranging from four to twelve persons each. Besides these there are the vast numbers of tenements which have had to be condemned, and the others like them which simply cannot be condemned just now, because there is nowhere to put the people, if these dens are closed, except the gutter. I know a number of houses in my own constituency in Bethnal Green which were the subject of proceedings before the magistrate, and were proved to him and admitted by him to be so bad that an immediate closing order ought to go; but he said, with the assent of all local opinion, that he did not feel justified in making the order unless there was room for the people somewhere; and the Vestry officers, although they searched for weeks, simply could not find it. That went on, to my knowledge, for months; and, for aught I know, those houses are not closed yet.

All municipalities, however, have experience of overcrowding and of insanitary slums. In London they are the worse because the administrative chaos I have described and the leasehold system have directly encouraged both these curses of the community. The Metropolitan slum areas are of vast extent, taken as a whole, but they are the more unmanageable because they are scattered everywhere over the map of London. In the days of the early Metropolitan Board of Works clearances the typical slum area was supposed to lie on the east and north-east

of the City—say from Tower Hill to Shoreditch and to Clerkenwell; and the long list of costly clearances in that region was capped by the gigantic London County Council scheme, not yet completed, in Bethnal Green and Shoreditch, where we have had to clear 15 acres at a sweep by the eviction of 5,719 people, and at an estimated cost of £279,840.

Yet that eastern region, which we may call in a large sense the Whitechapel area, was not the only one, nor even the worst. In Southwark and the parishes about it, and to the eastward of them along the river side, there were places quite as bad. In and about Drury Lane, and all along at the back of the fine frontages in the Strand, and up behind St. Martin's-in-the-Fields, and on into Soho, there were some of the very worst plague spots of all.

In fact, the places where the Medical Officer has had of late years some real anxiety as to outbreaks of typhus were not in the East, but in the South and in those frightful courts behind the Strand. As you are aware, we have now a scheme going on for clearing vast ranges of these slums in and near Clare Market, where 3,038 people will be evicted, at an estimated net cost of £216,500.

But the bad areas are to be found literally everywhere. There are, or lately were, intolerable places away in the north-west—actually in the palatial parish of Kensington. We are at this moment dealing with a whole range of miserable areas in St. Pancras, on one of which alone—the Churchway area—1,086 people have to be unhoused, and only 586 can be again re-housed. Lambeth has furnished some specially difficult cases. And so on, all round the compass. Of this, the worst effect is that the smaller the area, and the better the neighbourhood around it, the more difficult is the task of constructing any satisfactory scheme on the plan of the existing Acts.

Why, you may ask, are there in this way slums in all quarters of London? The answer is undoubtedly to be found in the bald political economy of supply and demand. The conditions of

London life have been and are such, that there are masses, large or small, of the very poor, who are wanted in all these places, and who cannot very well live anywhere else. When the Council had to clear the great area I have mentioned at Shoreditch, the difficulty and cost of getting sites for re-housing were found to be so great, that the Council's officers devised a plan for offering the slum dwellers a cottage and garden at Potter's Bar, only a few miles out, on the railway which had the best workmen's trains coming to a terminus close to their old homes. They were offered housing and railway tickets for the same rent they paid in the slum. Yet not five per cent of them would even look at the offer.

And the worst of it is that they were right. It would, on the whole, have been a more onerous state of things for them and for their families.

A slum, in a word, represents the presence of a market for local casual labour. So the slums of Drury Lane are the creation of one market for very casual labour—the theatres; and another market for labour which is riveted to the spot—the early work at Covent Garden. The rents that I have known to be paid for impossible rooms—for I once kept a boys' club there—are incredible. The people are in the main what you would expect from such surroundings—improvident and reckless, given to drink, gambling, and general disorder; and their habits naturally reacted again upon the slums they lived in.

When I first went to see the place, I asked a policeman the way to Shelton Street. He stared at me. I said, "I fear it is not a pleasant place." "Sir," said he, "Shelton Street is the worst place where I ever drew a truncheon." And yet its rents, as I have said, were enormous, and the owners of the property must have made a royal harvest.

In Soho, in like manner, are high-rented and hideous slums, partly because the West End tailors' and other like demands for the capricious needs of fashion created within call of Piccadilly Circus an army of irregular workers; and the situation there

was made worse by the historical accident that the area became a resort of foreign refugees.

The fringe of misery radiating on the east and north-east of the City was the home of other hard-pressed trades—the low tailoring trade, horribly sweated; the fur workers, insanitary and oppressed: the girls who get work in the City to take home and bring again in a few hours; the small furniture trade; the match-box makers; and the sack makers—poorest of all. Many of these trades fell into the hands of Jew sweaters—and sweaters who were not Jews. And the area suffered further by the influx of the miserably poor and squalid foreign Jews themselves, though that element has been ludicrously over-estimated.

Again, by the Docks, from Tower Hill onwards, and on the south of the river, all along the river side, there is an enormous riband of casual labour, which must live near the water, for it gets its living by chances that must be seized at a moment's notice—often literally by "watching every tide."

Such people, then, and such conditions have made the slums; and our task is to unmake them. How is it to be done?

I have brought you, designedly, face to face with the crux of the problem. Turn it how you will, it is true that with us (and no doubt also in other towns in a less measure) there are large bodies of poor workers who must live reasonably near their work—and they are precisely those casual workers who by the conditions of their life are apt to be on the whole ill paid, badly organised, disorderly, improvident, and drunken. I cast no stones at them; let him who would, first realise the conditions under which they live.

If we could abolish all such casual labour, and have industry so well organised that all the workers should have practically regular work, and should know just when and where to go for it, then the poor labourer might do what the aristocracy of labour does now—migrate to the suburbs, or to outside areas like Tottenham, where there are cottages to be had with gardens—

of sorts—and where a whole city empties itself every morning into London by rail, and flows back again at night.

If the whole of our million and a quarter who must be housed, and who are "below the line of poverty," were at least living by organised and regular employment, the problem would be comparatively simple. It would then mean, in effect, the building of other outlying suburbs of workmen's homes outside the business area, and the provision of cheap and rapid transit for the workers in and out, at all needful hours of day or night. This itself is a large task. At present only one of our great railways (the Great Eastern) has made any serious attempt to develop workmen's trains, and all the earnest pressure of the Council's Housing Committee, continued over years, has produced little improvement in these facilities. The railway managers say that they have not room in their present termini to stow away endless files of workmen's carriages, when all the clerks and better class suburban folk are flowing in themselves. That difficulty is a real difficulty; though probably more soluble than they choose to say. But it will perhaps never be completely removed until all the great lines exchange with each other underground, either, as some do at present, by connecting branches and mutual running powers, or by the creation of that great underground Central Station, which is one of our cardinal needs, if the life of London is to be intelligibly organised as a whole.

Besides workmen's trains, there is a grievous need in London for a much more complete and rapid system of trams, and these again must connect through the centre, if they are to be really useful on a large scale for the people's needs. For that reform we require municipal working, which is just beginning now, and we require electric traction, which will come soon. And beyond this, let us not forget to pay the homage due to that new and powerful engine of cheap and convenient transit, the omnipresent bicycle. That, in my opinion, will in the end be found to have done more for the solution of the Housing Problem, and for revolutionising the growth of cities, than all our clearances have accomplished.

But all talk about planting out the workers in the green fields, and solving the problem by rapid transit, is really an evasion of the true difficulty. The fact is, that a large fraction of our poorer workers cannot reasonably be expected to live ten miles, or even five or three, from their work. A river-side labourer who must "watch every tide"—and one of those who knows him best lately assured me in the Council during a housing debate that the South-side labourer physically does it—how can he live at Dulwich? As with him, so with the whole tribe of hangers-on. The men and women who are sent for in a hurry to do tailoring or other making up—who can take the job home there and then, do it at hot haste, and run back with it—how can they live at a distance? How can anybody with irregular hours, or capricious employment—taken on this morning for 36 hours on end—then calling time and again fruitlessly for a week—and then falling in for another good chance if, and only if, he is just on the spot at the lucky time—how can he sleep anywhere except in a corner close at hand? And let it be remembered that even if the father of a family is in regular work, his boys and girls, when they begin to earn, may not be so regular; and remember, also, that for all there are times when they are seeking work, and dare not lose a chance by being out of the way; and yet, if they live ten miles out, "being out of the way" must be their normal position as compared with more fortunate competitors whose home is nearer at hand. In modern wage-earning, it is more than ever a case of "first come, first served."

Now, what I call my problem is laid bare. Assume with me that there is this body of London workers for whom those conditions exist which make it really disastrous that they should sleep far from the river, or from the market, or from the City, or the West End, or whatever their objective may be—assume, for the sake of clearness, that there are half a million of them—the number does not much matter, but I am personally sure there are more—how, I ask, are we to house that mass of families in the conditions which have now arisen?

By the efflux ion of the old leases, by railway and other private clearances—not to mention public schemes—thousands and tens of thousands of old workers' homes are now being cleared. The public schemes themselves have only added to the difficulty, for we have unhoused far more than ever we have housed again; and of late the tendency has been to get leave in each new scheme to re-house only half the number cleared. A few weeks ago the London County Council heroically resolved to change all that, and I submit to you as an appendix a very illustrative extract from the Report of the Housing Committee—on which that resolution is taken—from which you will see, to put it shortly, that public clearances have made less than no impression since the census of 1891 on the general want of housing. It is, indeed, agreed that the deficit of sleeping room for the poor workers is worse now than it was then. New policy belongs to the future, and has its own conundrums. It may easily be destroyed by an electoral reverse, or obstructed, or it may be tried and fail. The master fact is that the courts and streets where these poor folks lived are being destroyed, and soon will be replaced by new buildings, and put to commercial uses, which are indefinitely more remunerative than housing the people.

Everyone knows that land anywhere within reach of the Bank of England is becoming more and more valuable as a commercial site. The merchant and the shopkeeper used to live over the shop. Why do not they live there now? Because their living rooms, however cramped they were, are worth several hundreds a year as offices, even without re-building them at all. When the expiring of a lease, or any other chance, allows the site to be dealt with freely for its highest economic utility, it is obvious that it will become a warehouse, a bank, a hotel, a block of offices—anything, in fact, except a home for working folk. So plain is this, that everyone discusses the valuation of a site, which for any reason has been earmarked for housing, on the understanding that with that disastrous limita-

tion is not worth more than a fraction of its true value. Even poor sites are depreciated by a covenant to put workmen's dwellings on them. And this commercial appreciation of site values near the centre of exchange is running to such lengths that none can foresee the limit. Land near the Bank is said to be running up now towards a million an acre. Even a mile or two away the commercial value is so great that the residential population is steadily and rapidly vanishing. The area, not merely of the City, but of the Strand, of St. Olave's in the South, of Finsbury, and now even of Whitechapel and Wapping, is visibly passing to non-residential uses. And one result of this is that the rents in the east of London for slum tenements and shops in the small streets have suddenly leapt up of late, sometimes by 70 to 80 per cent. The house-knacker may not yet be able to clear and re-build, but he practically tells his tenants that if they choose to sleep there they must pay a business price. He knows that it is disastrous for them to leave, and that most of them will pay it—and in all probability will try to mitigate the bitter pressure by gross and indecent overcrowding with increased numbers of lodgers, already far too numerous.

We find ourselves, then, at this pass. A multitude of poor workers' families must live near the centre; and the land near the centre has attained a value the equivalent of which they cannot conceivably pay, and it goes on increasing with fatal certainty. Many workers are probably now living in places which are economically worth £100 a year per room, if they could be put to their most profitable use. To that they will surely return when the leases end—perhaps sooner—for there is no legal check on private "improvements," and men like Lord Cadogan have already evicted thousands with hardly a protest. Even the legal check on public works is evaded. It rules that any scheme which displaces twenty families of the working class must provide a corresponding means of re-housing. But the great railways, and even the School Board itself, habitually

arrange their plans so as to take only nineteen families at a time, whenever they can plan a year or two in advance. The people go somewhere, and no one much cares where. In the Chelsea case they could find vacant and fairly cheap ground at Battersea, a mile or two away, and even then it was bad enough. But if Whitechapel, and Stepney, and Limehouse, and Mile End, and Bethnal Green, and Shoreditch, and Spitalfields are all depopulated—as they may well be—where will these myriads go?

This problem, I think, no one has seriously faced. To say that it should be left to settle itself seems to me to be one of those inhuman counsels which are the seed of revolutionary discontent, and bring on in the end more violent remedies than even the extremists would wish. To say that the community should buy up slum areas, and re-erect on them an adequate number of workmen's dwellings, under present conditions of cost, is almost appalling. The Metropolitan Board of Works cleared 22 acres, at a net loss of over a million and a half. Other towns, such as Glasgow and Birmingham, have turned these operations into speculations almost remunerative; but in London, with such districts as those I speak of, it is absurd to propose it. We must be prepared, if we go in for municipal housing of this kind, to face the fact that we will be sacrificing vast portions of the possible economic value of sites in the very centre of the world, and will be providing homes for certain needful servants of the community at wholly artificial rents. It will be said that to do this is to "pay rent out of the rates" for a favoured class. To that the London County Council will certainly not allow itself to be driven except in the last resort. But I ask myself, Can the London County Council, or Parliament, or anybody else, avoid this necessity in the long run, if we are really in earnest about the housing of the casual poor of London? It is easy to make electioneering capital out of such a cry; and is is already being unscrupulously made by the *Times* and other organs of misrule. I do not profess to solve the riddle. But I ask the question: If there

are men who must live near their work, and if all the sites near their work are worth more per room (on any possible method of building) than their wages will let them pay, how is anybody going to arrive at an equation?

I raise the problem, as you will see, with no eye to making electoral capital. On the contrary, the man who faces it risks attack. But I raise it because I want to see these masses housed in decency at possible rents, and I see that, as we have been drifting hitherto, they are simply being crowded closer and rented higher, and I see that that cannot go on for ever. What I plead for is that all who talk of housing, whether they are experts or electors, should face the facts, for the facts are very grave. A man may say, of course, that there ought to be no "casual" labour of the kind I describe—and that if there were not, all workers could have lovely cottages in the country. If that is your view, then let us set about the colossal work it involves. Let us settle how this new province of cottages is to be built, so that it may not make new horrors, as it too often does now, not only in London but in provincial cities, because it is beyond the boundary of strict supervision. Let us also proceed to root up all the irregular employment, and arrange hours everywhere so that it is possible for the workers to travel to and fro. Let us see that railways and fast trams, private or public, develop rapidly the zone of ten miles round the present London, with radial lines and convenient stations, so that every workman cottager can get to a central point in about half an hour from his own door, at intervals of, say, a quarter of an hour, any time from five a.m. till eight, and return in like manner any time from five p.m. till nine at rapid intervals, and any time until the next morning where the night working trades are concerned. The thing *can* be done, though it is a colossal work, at which the existing companies have only nibbled as yet. It needed the actual start of Municipal tram-working to persuade even the East London Trunk line to put on the first night tramcars a week or two ago; and until a few months ago a large

body of press workers had literally to hang about for hours in public-houses waiting for the first morning train from Waterloo. If transit on a sufficient scale for real suburban housing is to succeed in London, I personally believe firmly that not only trams but local railways will have to be worked by and for the community.

That, you will probably say, is "a large order." I agree; but I do not know that in the end it can be avoided, and I personally am not afraid of it. But for the moment I am only pointing out alternatives. If you go in for suburban housing, you assume that a relatively perfect system of transit will replace a very imperfect one devised almost entirely for middle and upper class requirements. You also assume, as I have said, that no employment is to be "casual"—irregular, tied to the tides, or compelled to hang about the market or the tailor's shop; and further, that men out of work shall have a better chance by going to regular places for it than by hanging round and trusting to the chapter of accidents. That would be, indeed, a blessed result; and, in a limited way, things are being reformed in that direction. But to do it with even approximate completeness is an enormous task. It means that almost all the workers, of all trades, shall be in trade unions, and that organisations of masters and men shall work together in these things. Till that, and more, has come to pass, there will still be the hundreds of thousands of the casual labour class, and you will have to house them.

Permit me to add a warning. Many say, and say truly, that much of the present shame and misery arises out of the abuses of the private ownership of land values. I say so as strongly as most. I should be glad if I saw my way to large schemes of municipalisation of urban land, not only for housing, but for all the essential needs of an urban community. I hold that the community should be able to expropriate land for all its needs at no greater price than the owner can be shown to have really lost. But even if the community owned the land

values itself, the casual housing problem would be in its essence the same. For the real point of it is that this "casual" labour has to be housed at places where any bedroom may be worth £100 a year. We may obscure that fact, but no jugglery will abolish it.

"Paying rent out of rates" is discussed in the *Times* as if it were a question of Progressive extravagance or electoral corruption But the whole scheme of the Housing Acts of Parliament is built on the principle that the rent of these slum workers, when they are re-housed, is to be largely "paid out of rates." From that result there is no escape so long as people must sleep near their work. It seems to me that, in the last resort, my riddle comes to this simple theorem: If society cannot arrange that its industry shall be so organised as to abolish the difficulties of this casual labour, bound to the centre of a town, then society must be content to pay the rent of a sufficient corps of hangers-on. It is not a pleasant dilemma, and neither horn of it is easy. But all dilemmas are simpler after we have faced them, and all are capable—and certain—of a solution.

APPENDIX.

Extract from Minutes of the London County Council for November 29, 1898.

Course to be pursued in connection with the Housing of the Working Classes.

The course which we think the Council should adopt in this matter may be conveniently considered under two heads, namely—(i.) that to be observed in carrying out statutory obligations to *re-house*; and (ii.) the course to be pursued in order to increase the dwelling accommodation.

Re-housing.

And first as to the course to be pursued with respect to re-housing.

The statutory obligations which rest upon the Council in this matter are incurred either under a scheme for the improvement of an unhealthy area or for the construction of a new street.

Under the provisions of Part I. of the Housing of the Working Classes Act, the Council is in London the sole authority for carrying out schemes for the improvement of unhealthy areas, which are of such magnitude and importance that their entire cost ought to fall upon the whole county. In such schemes

dwelling accommodation has to be provided on the improvement area for the same number of persons of the working class as is displaced. The requirement is, however, subject to variation to the extent of one-half at the direction of the Secretary of State.

Under the provisions of Part II., smaller insanitary areas have to be improved either by the Council or by a vestry or a district board, or at the joint expense of a vestry or district board and the Council. The dwelling accommodation to be provided under schemes framed under this part of the Act is entirely at the discretion of the Local Government Board.

Under these two parts of the Act, the primary object of which is the removal of unhealthy conditions, the Council has already carried out the following schemes:—

A.—*Land cleared and left vacant, after ineffectual attempts at sale, by the Metropolitan Board of Works, and subsequently built upon by the Council.*

Name of scheme and buildings erected thereon.	Number of persons displaced.	Number of persons obliged to be re-housed.	Number of persons re-housed.	Approximate cost of land and buildings.
				£ s. d.
London (Brook Street, Limehouse) Improvement Scheme, 1883—	562	261		
Beachcroft Buildings	.. .	....	200	11,681 9 9
London (Hughes Fields, Deptford) Improvement Scheme, 1885—	1,786	893	240 (By Provident Association)	
Hughes Fields Cottages	....	....	666	39,379 11 3
London (Cable Street, Shadwell) Improvement Scheme, 1886—	850	485		
Cable Street dwellings—				
Dellow Buildings	....	....	530	26,311 9 10
Bewley Buildings				
London (Shelton Street, St. Giles) Improvement Scheme, 1886—	1,227	608		
Shelton Street dwellings—				
Aldwych Buildings	....	....	292	24,924 14 11
Cotterell Buildings				
Lindsay Buildings				
Powis Buildings				
Wimbledon Buildings				
Parker Street Lodging-house	....	....	324	22,136 6 0
Totals	4,425	2,247	2,252	124,433 11 9

B.—*Sites cleared by the Council.*

Name of scheme and buildings erected thereunder.	Number of persons displaced.	Number of persons obliged to be re-housed.	Number of persons re-housed or to be re-housed	Cost.	£	s.	d.
London (Boundary Street, Bethnal Green) Improvement Scheme, 1890—	5,719	4,700	5,524	*Scheme,*	266,532	0	0
Streatley Buildings	....	....	272	*Buildings & Land*	19,253	6	6
Cleeve Buildings	....	....	206	,,	15,834	14	7
Marlow Buildings	....	....	258	,,	‡15,995	0	0
Chertsey Buildings	....	....	108	,,	‡6,655	0	0
Sunbury Buildings	....	....	390	,,	‡23,800	0	0
Taplow Buildings	....	....	250	,,	‡11,655	0	0
Hurley Buildings	....	....	50	,,	2,736	10	6
Sandford Buildings	....	....	50	,,	2,648	5	5
Culham Buildings	....	....	110	,,	5,887	8	10
Sonning Buildings	....	....	250	,,	11,328	12	3
Shiplake Buildings	....	....	212	,,	‡11,270	0	0
Iffley Buildings	....	....	90	,,	‡5,000	0	0
Henley Buildings) Walton Buildings)	....	....	700	,,	38,809	12	4
Central Laundry	....	....	—	,,	10,070	14	5
Cookham Buildings	....	....	306	,,	‡17,090	0	0
Clifton Buildings	....	....	404	,,	‡22,268	0	0
Molesey Buildings	....	....	124	,,	‡6,417	10	0
Lalcham Buildings	....	....	380	,,	‡21,141	10	9
Hedsor Buildings	....	....	410	,,	‡23,724	0	0
Benson Buildings	....	....	180	,,	‡11,462	0	0
Abingdon Buildings	....	....	360	,,	‡23,119	0	0
Wargrave Buildings	....	....	270	,,	‡17,065	10	0
Goldsmith Row Cottages	....	....	144	,,	8,128	8	11
London (Churchway, St. Pancras) Improvement Scheme, 1895.	*1,086	580		*Scheme,*	39,150	0	0
London (Clare Market, Strand) Improvement Scheme, 1898.	*3,038	†2,250		,,	216,500	0	0

* These persons have not yet been displaced.

† Of these 1,500 have to be accommodated on the Millbank estate (distant about two miles). Buildings to accommodate 306 persons are nearly complete, and working drawings for four more blocks are proceeding.

‡ Estimate. Accounts not finally settled.

C.—*Sites cleared by the Council, the vestry or district board concerned contributing towards the cost of such clearance.*

Name of scheme.	Number of persons displaced.	Number of persons to be re-housed.	Approximate cost.	£	s.	d.
London (Brooke's Market, Holborn), Improvement Scheme, 1891	55	60	‖	5,950	0	0
Cranley Buildings	—	60	‖	3,467	[illegible]	2
London (Mill Lane, Deptford), Improvement Scheme, 1892	715	*550	‖	19,712	15	0
London (Ann Street, Poplar), Improvement Scheme, 1893	261	*180	‖	8,800	0	0
London (Falcon Court, Borough), Improvement Scheme, 1895	†800	‡500	‖	18,800	0	0

* Accommodation for these persons has not yet been provided.

† These persons have not yet been displaced.

‡ Buildings to be erected by the Council on the Borough Road and Green Street sites.

‖ Estimate.

D.—*Sites cleared or about to be cleared by Vestries or District Boards, aided by a contribution from the Council.*

Name.	Number of persons displaced.	Number of persons to be re-housed.	Approximate cost.	£	s.	d.
London (Green Street, Southwark) Improvement Scheme, 1891	128	216	*Schemes.*	4,606	17	11
London (Gun Street, Southwark) Improvement Scheme, 1891	246		*Buildings & Land*	23,609	9	4
London (Norfolk Square, Islington) Improvement Scheme, 1892	214	102	*Schemes*	7,834	0	0
London (Moira Place and Plumber's Place, Shoreditch) Improvement Scheme, 1893	533	400	,,	51,200	0	0
London (London Terrace, St. George-in-the-East) Improvement Scheme, 1893	100	None	,,	3,200	0	0
London (Queen Catherine Court, Ratcliff) Improvement Scheme, 1893	109	108	,,	6,400	0	0
London (King John's Court, Limehouse) Improvement Scheme, 1897	Not known	96	,,	16,300	0	0
London (Lomas Buildings, Mile End, Old Town) Improvement Scheme, 1896	Not known	None	,,	1,760	0	0
London (Fulford Street and Braddon Street, Rotherhithe) Improvement Scheme, 1897	730	550	,,	29,120	0	0
London (Brantome Place, St. Pancras) Improvement Scheme, 1896	719	800	,,	16,940	0	0
London (Prospect Terrace, St. Pancras) Improvement Scheme, 1896	581		,,	11,273	0	0
Totals..	3,360	2,272				

* Vacant land acquired, and buildings erected by the Council. The buildings accommodate 420 persons.

The main difference between the two parts of the Act, apart from the size of the insanitary area to be dealt with, is therefore—

(i.) Part I.—Dwelling accommodation for at least half the persons displaced *must* be provided on the area of displacement.

Part II.—The provision of dwelling accommodation *may* be dispensed with altogether.

Hitherto the Council, whether acting under Part I. or Part II., has in many cases felt itself justified in securing the provision of dwellings for a number slightly in excess of half those displaced. Having regard, however, to the need of dwellings so acutely felt at the present time, we think that the Council should no longer be satisfied with this minimum. We are of opinion that housing

accommodation should be provided for a number of persons equal to that of the working classes displaced by any scheme under the Housing of the Working Classes Act. It seems to us also that in this respect no distinction ought to be drawn between the policy to be pursued in connection with schemes under the Housing Act and that to be pursued in carrying out a street improvement. We therefore desire the Council to express the opinion that housing accommodation should be provided for a number of persons equal to that of the working classes displaced by any scheme under the Housing of the Working Classes Act, 1890, or under the provisions of any improvement Act.

It is, however, not always possible to provide accommodation for all the persons displaced on the actual improvement area. It will frequently happen that, owing to the absence of vacant sites, sufficient accommodation cannot be provided even in the immediate neighbourhood. We propose that housing accommodation for persons displaced shall be provided within the County of London, but not necessarily in the immediate neighbourhood of the displacement, due consideration being given to the needs of those living on any particular area.

The plans of the dwellings built under Parts I. and II. have to be submitted to the Home Secretary and the Local Government Board, and owing to the high standard of accommodation required by these departments it is not possible to provide low-rented dwellings.

(ii.) Part I.—The Council pays the whole cost.
Part II.—The cost *may* be shared between the Council and a vestry or district board.

The course which the Council has hitherto adopted has been to consider each case that has arisen according to the whole circumstances, with the result that areas have, in the majority of cases, been dealt with under Part II. rather than Part I. of the Act, and the cost divided accordingly.

In the event of the Council adopting the above proposals, the cost of dealing with any unhealthy area will probably be

somewhat enhanced. The question now presents itself whether it is fair to expect the poor and crowded districts in which unhealthy areas most frequently occur to pay any heavy proportion of this enhanced cost. Such districts are already sufficiently heavily rated, and in this matter we consider that London should be treated as a whole, so that the financial burden may be equalised. The principle that expenditure for sanitary purposes should be borne porportionately by the whole county has already been accepted by the Legislature in the Equalisation of Rates Act, and we think the Council will not hesitate to apply it in this case.

We are therefore strongly of opinion that all clearances involving re-housing should be done at the sole cost of the Council.

The recommendations which we have to make upon the above considerations are—

(*a*) That housing accommodation should be provided for a number of persons equal to that of the working classes displaced by any scheme under the Housing of the Working Classes Act, 1890, or under the provisions of any improvement Act, but not necessarily in the immediate neighbourhood of the displacement, due consideration being given to the needs of those living on any particular area. [Amended and adopted.

(*b*) That all clearances under the Housing of the Working Classes Act, 1890, which involves re-housing be done at the sole cost of the Council. [Adopted.

MANCHESTER STATISTICAL SOCIETY.

Some Old Trade Records Re-examined: A Study in Price Movements During the Present Century.

By A. W. Flux, M.A.,

Professor of Political Economy in the Owens College.

(Read February 8th, 1899.)

In taking a date for which another paper had been announced, I must to some extent cast myself on the mercy of the members, since it has not been possible to make as complete as I had intended certain parts of this paper. Anticipating a full month for completing it, I found that it became desirable to finish it within ten days. Hence I claim some indulgence in the passing of judgment on some unavoidable omissions.

Having been occupied during the earlier meetings of the session in the discussion of burning questions of pressing practical importance, it may not be without some advantages to devote one meeting to matters which contrast with these propositions for social reform, before we again occupy our attention with other

questions of immediate practical importance, which are to be brought before us in the months to come. The tables of figures, in the contemplation of which I invite you to take respite from the fevered discussion of social evils, will not lack, nevertheless, some degree of practical applicability, so, at least, I venture to hope. This hope I indulge in spite of the fact that the investigations have been undertaken and carried out for their own sake rather than for any purpose of proving the truth or falsehood of any particular doctrine.

As all who have studied the trade statistics of our country are aware, the basis on which they have been prepared has changed from time to time. It is, for example, only since 1854 that both imports into and exports from the country have been recorded on a basis of actual values, and only from 1870 that both sets of records rest on the declarations of the merchants engaged in the business of export and import. Hence the absurdity of such statements as that which a weekly paper devoted to commercial matters recently printed among its correspondence. The writer of the letter referred to asserted that, for 150 years, the first occasion when the imports exceeded the exports was in 1854, when the balance turned to 37 millions sterling excess of imports, having been 119 millions excess of exports in the previous year. This writer is really serious, though his guilelessness in suspecting nothing in face of such a startling change is truly marvellous. His whole basis of argument is destroyed by the fact that the calculations on which the excess of imports is derived are such as assign the values of the actual year to the goods considered, while those which show the enormous excess of exports are arrived at by assigning to the goods prices determined a century and a half before. The calculations of the values of the trade of 1854 on the latter basis exist, and these, as might be expected, show in 1854, as in 1853, an excess of exports, and an excess of approximately the same amount.

This basis of error in an attack on Sir Robert Giffen's recent

address to the Royal Statistical Society would not have been of sufficient importance of itself to justify notice before you, but it serves to introduce the principal theme of my paper to-night. Throughout the century till 1869, including that year, we possess a record of imports and exports, estimated, as the accounts inform us, at their official values. These official values are a set of values determined in the seventeenth century, and modified in some slight degree only at a later date. In evidence given before the Committees of Secrecy of the House of Lords and of the House of Commons, which inquired into the circumstances attending the suspension of cash payments by the Bank of England in 1797, Mr. Irving stated that these values were fixed in 1696 or 1697. Mr. Irving was Inspector-General of the Imports and Exports of Great Britain and the British Colonies, and in subsequent reports bearing his signature the prices are said to have been settled in 1696. When Mr. Porter, in his "Progress of the Nation," mentions these statistics, he assigns 1694 as the date of the valuation. Now in 1696 there was established a body of "Commissioners of Trade and Plantations," whose labours embraced the preparation of trade records, and hence one can readily understand how the tariff of values should be naturally assigned to 1696. I hoped to be able to find the record of the actual valuations employed, and determine their date, but have not yet found it in any of the works I have examined in Manchester. Whether the official valuation was settled in 1696 or at an earlier date, a record based upon prices, assigned however accurately in the seventeenth century, affords but a poor basis for the estimation of actual changes of trade in the nineteenth century, it may be very naturally urged. Such a reflection might make us turn from the record in despair of obtaining any substantial amount of useful information.

But may we not learn something substantial from it? A mode of estimating changes in the general level of prices which has been used with effect by Sir R. Giffen is that of calculating what the actual imports or exports would have been valued at

if the prices of some selected year of reference were assigned to the various articles. The difference between this calculation and the recorded actual value measures the average change of prices. The same method has been employed by Mr. A. L. Bowley to compare each subsequent year with 1881, just as Mr. Giffen compared various years with 1873 or with 1883. The only question before us, then, is whether the proportions of various prices to one another at any time from 1800 to 1869 were so entirely different from the similar proportions in the official tariff of valuation that the comparison would be useless. May it not be as well to see what the result of the comparison is before rejecting it, seeing that the general course of price movements has been measured in an index number by Jevons from 1782 to 1869, and by Mr. Sauerbeck from 1818 onwards, and these provide a criterion by which to test our conclusions.

For making the comparison, we, of course, require that the same goods whose official valuation is given us should also be valued at the actual prices ruling at the date when they were the subject of trade. Fortunately, we have such a record for the exports of British and Irish produce from 1805. For some few earlier years the exports from Great Britain alone enter into the comparison. The declarations of exporters for the purposes of charging convoy duties, with an estimate based on current prices for such goods as were not so valued, afford figures from 1798 onwards. These declared values were continued after the first occasion for them had ceased, and, even after they disappeared from the trade accounts, continued to be stated in the Annual Finance Accounts till 1870, when they appear for the last time in the accounts of the year 1869. From 1854 to 1869, inclusive, the imports were valued in accordance with prices officially determined and based on the prices current at the time. The comparison of these computed values with the old official values, which, alone recorded before 1854, continued to be recorded with those of the exports till 1869, affords an estimate of change of prices of a different class of goods to those

concerned in the export trade. There is also during this period a separate record of re-exports similar to that of the imports. These, then, are the records which afford the following tables. In addition, we have a computation of the real values, estimated at the prices current, of both imports and exports, and also of re-exports, for the average of the three years 1796-98. These values are compared below:—

Official and Real Values of Imports and Exports on the Average of the three years ending January 5, 1799.

	Official Value.	Real value, estimated at the prices current.	Real Value as a percentage of Official Value.
	£	£	
British Produce Exported...	18,559,275	31,272,865	168·5
Imports.....	24,019,721	42,689,108	177·7
Re-Exports	9,651,328	11,685,030	121·1
Retained Imports	14,368,393	31,004,078	215·8

The great variety of the figures in the last column is a very striking feature. The figures from which the last percentage is deduced were obtained for the primary purpose of comparing the real with the apparent balance of trade. A comparatively slight difference in this balance, as measured by real values, becomes exaggerated to a considerable excess of exports when represented by official values. Values both of imports and exports stand high above the basis of the official valuation; but the contrast in respect to the foreign and colonial goods retained in the country and those resold abroad is somewhat remarkable. Some explanation may be found by considering one or two articles. Among the imports for these years, corn imported averages over £2,700,000 in the real values. Now this is an article of which little was again exported. We find (*v.* Committee of Secrecy Report above referred to) that the official valuation of imported wheat was 32s. per quarter, of oats 12s., and other grains to correspond; the average price of wheat was 78s. 7d. in 1796, 53s. 9d. in 1797, and 51s. 10d. in

1798; that of oats was 21s. 10d. in 1796, 18s. 3d. in 1797, and 19s. 5d. in 1798. Cotton wool, again, was very dear in the three years in question, standing for an average of nearly £2,400,000 among the imports, while the official value at the conventional price of $7\frac{3}{4}$d. per lb. was barely £850,000. Not five per cent of the cotton imported was re-exported, so here again is an important item contributing to the contrast noted. On the other hand, coffee, which stood for over $2\frac{1}{4}$ millions in the imports, and of which about three-quarters was re-exported, was not reckoned at its old official value for re-export, the errors caused by change of its price having been so great as to excite attention and cause the institution of a revised price, the correction for which is made in the figures used above. I need not go into further detail. The conclusions from the comparison here instituted are not, in fact, at variance with Tooke's statement (Vol I., p. 210, History of Prices) "That while, from 1796 to the close of 1798, the prices of provisions and of European produce generally were falling, the prices of all transatlantic produce were rapidly rising . . . . and reached a greater height than they ever afterwards attained, until the commencement of 1814."

One further remark on these figures. Mr. Irving, in the evidence already referred to, estimated that the prices of British manufactures stood, in the Inspector-General's books, on the average about thirty per cent below the then current prices. This rough estimate of the state of affairs about 1796 and 1797 is seen to be somewhat below the mark, for the inclusion of 1798 in the average does not substantially affect the comparison.

Before proceeding to the continuous record of exports under the two sets of prices, we may further pause to notice the separate figures, given in Macpherson's Annals of Commerce from the official returns, of the real and official values of imports and re-exports for the two last years of the eighteenth century, after which I have found no corresponding record of these figures till 1854. These figures, then, are given in the follow-

ing table, and, for comparison with the last, the exports of British produce are also included:—

Official and Real Values of Imports and Exports in 1799 *and* 1800.

	Official Values.	Real Marketable Value.	Real Value as a percentage of Official Value.
	£	£	
Exports of British Produce 1799	24,084,213	38,942,498	161·7
Exports of British Produce 1800	24,304,284	39,471,203	162·4
Imports, 1799, from Asia	4,284,805	8,918,248	208·1
Do. from Rest of World..	22,552,627	40,083,923	177·7
Total	26,837,432	49,002,171	182·6
Imports, 1800, from Asia	4,942,241	9,827,278	198·
Do. from Rest of World..	25,628,364	45,573,138	177·8
Total	30,570,605	55,400,416	181·2
Re-exports of Foreign and Colonial Produce 1799...	9,556,144	11,347,693	118·7
Re-exports of Foreign and Colonial Produce 1800...	13,815,837	16,359,641	118·4
Retained Imports 1799	17,281,288	37,654,478	217·9
Retained Imports 1800	16,754,768	39,040,775	233·0

The figures of this table are obtained, so far as concerns the imports and the real value of the exports and re-exports, from Macpherson's Annals. The figures of the official value of re-exports are taken from official returns, and the correction for revaluation of coffee in them has been made. The figures given by Macpherson clearly have not been so corrected. The great fall in the price of transatlantic produce in these years noted by Tooke appears to be offset by the rise in price of imported corn, and the import of corn was large. Provisions and other articles of European produce, having also risen in these years, by Tooke's evidence, the rise in the average level of import prices is very readily understood. Once more, too, we see how the apparent excess of exports in the official accounts dwindles to insignificance in the record of values at prices current at the time.

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Let us now turn to the result of applying the method here illustrated to the record year by year of exports of British, and from 1805 of Irish, produce as valued at the old official rates, and as declared by exporters. The extended table is given in the appendix, a summary being better adapted for the purpose of general comparison.

Average of the Years.	Exports of British Produce.		Percentage proportion of Col. (2) to Col. (1)	Jevons' Index Number.
	Official Value Thousand £	Declared Value. Thousand £		
	(1)	(2)	(3)	(4)
1798—1804	23,849	39,549	166·1	130·2
1805—1812	29,116	43,058	148·7	146·2
1814—1819	38,853	44,384	114 2	127·7
1820—1829	46,537	36,415	79·2	90·8
1830—1839	75,669	43,921	58 3	82·0
1840—1849	124,475	55,447	45·0	74·5
1850—1859	230,051	100,061	43·3	75·2
1860—1869	315,308	159,738	51·0	78·1

In this table, the heading of column (3) somewhat misstates the mode of preparation of the figures of that column. They are the average of the yearly figures given in the table of the appendix, which are obtained by dividing the actual figures of declared value by those of official value for each year, not the result of dividing the average declared value by the average official value. It seems desirable to present them so in order to keep on a fair footing of comparison with the averages of the index numbers prepared by Jevons. The absolute differences between the Jevons index and that of column (3) is due to a difference in the reference period, Jevons' number standing at 100 in the year 1782, the other standing at 100 at a period earlier by about a century. But the great difference shown in the proportionate variation of the two numbers is calculated to awaken a want of reliance on any satisfactory interpretation of the number represented in column (3). The cause of the great discrepancy in the price movements indicated by the two numbers is not far to seek, and its study is peculiarly

instructive, as bringing into prominence a well-known cause of certain variations between such index-numbers as that of the *Economist* and that prepared by Mr. Sauerbeck.

When we come to examine the items which make up the trade totals, we find that one item among them is of such magnitude as to completely overshadow all the rest. That item is cotton goods. Now the actual prices of various descriptions of cotton goods have, as a result of the application of the numerous well-known inventions, fallen in an extraordinarily marked degree. Further, as the prices of the official valuation date from a period anterior to these great changes, the official valuation stands exceptionally far above the real valuation during the greater part of the period under consideration. These facts are shown in the following summary:—

Exports of Cotton Manufactures and of other Goods Compared.
(Value in Thousands of Pounds.)

Period	Official Values.			Declared Values.		
	Exports of Cotton Manufactures.	Exports of other Merchandise.	Cotton Yarn included in (2)	Exports of Cotton Manufactures.	Exports of other Merchandise.	Cotton Yarn included in (5).
	(1) £	(2) £	(3) £	(4) £	(5) £	(6) £
1814-16	18,234	20,717	1,164	16,533	31,042	2,465
1817-19	19,539	19,217	1,404	14,335	26,857	2,402
1820-24	23,601	19,600	2,337	14,201	22,581	2,719
1825-29	27,609	22,263	4,114	13,298	22,750	3,563
1830-34	38,080	28,055	6,227	14,014	24,621	4,549
1835-39	50,092	35,112	8,812	16,579	32,627	6,613
1840-44	65,244	45,674	11,708	16,548	35,709	7,264
1845-49	82,443	55,590	12,516	18,209	40,428	6,687
1850-54	113,882	84,252	12,728	23,885	60,118	6,652
1855-59	154,818	107,149	16,290	32,064	84,056	8,593
1860-64	150,539	123,688	10,994	39,119	99,289	8,498
1865-69	193,391	162,998	13,437	53,962	127,107	13,542

Here it is quite obvious, in the general comparison, the high official value of the cotton piece-goods and other manufactures,

coupled with the really great part played throughout the period by cotton goods in our trade, cause the movement of the price of cotton goods to obscure the movement of the prices of other merchandise. I have therefore performed the operation already illustrated on the figures represented in columns (2) and (5) of the preceding table, leaving in the values of cotton yarns so that cotton may obtain a substantial representation in the result. How substantial that is is shown in the table given. As I cannot obtain the details for years preceding 1814, it is with that year that the comparison on this basis must begin. The result of this comparison is summarised below, and given year by year in the appendix.

Proportion of Declared to Official Value of Merchandise other than Cotton Manufactures Exported from the United Kingdom.

Period.	Percentage of Declared to Official Value of Exports, as above.	Jevons' Index Number.	Sauerbeck's Index Number.	Period.	Percentage of Declared to Official Value of Exports, as above.	Jevons' Index Number.	Sauerbeck's Index Number.
1814-16	149·9	131·3	—	1840-44	78·5	77·4	92·2
1817-19	139·6	124·0	131·5*	1845-49	73·0	71·6	84·6
1820-24	115·6	93·0	105·6	1850-54	70·9	70·4	85·4
1825-29	102·8	88·6	100·8	1855-59	78·4	80·0	98·4
1830-34	87·8	78·8	90·6	1860-64	80·2	78·4	101·2
1835-39	93·0	85·2	108·0	1865-69	78·1	77·8	100·0

The correspondence here is, considering that we are dealing with exported commodities only in one case, and with generally representative commodities in the other, not less than might have been expected. Some striking discrepancies in the indications of the three sets of figures are at once evident. Comparing the new number with Jevons' index, there are two main features, one being the greater degree of fall over the period which is shown by the new number, the other the elevation of the figure for the quinquennium 1855-59 above those of the

* Average for 1818 and 1819, and corrected for premium on gold.

preceding and succeeding quinquennia in Jevons' number, which is not shown in the new number. Sauerbeck's number shows an even smaller degree of fall of prices at the end as compared with the beginning of the period, and marks the recovery from the low level of 1849 more quickly than either Jevons' number or the export number.

The contrast between the numbers now given and those of a previous table based on the whole exports, without the omission of cotton manufactures, illustrates the degree in which movements of price of a special commodity may influence an index number, if in that index number the commodity whose price undergoes exceptional variation is assigned a large degree of importance. The same will be seen in the comparison of the price movements obtained from the figures, not of exports only, but of imports also, and of re-exports, during the sixteen years 1854-69, with and without the inclusion of cotton manufactures. The import number shows a movement more nearly resembling that of the Economist number. The modified export number shows a movement analogous to that indicated by the Jevons and Sauerbeck indices. The large value of the cotton-wool imported causes the import index to manifest the abnormal variations of cotton prices owing to the American Civil War.

For the purpose of closer examination of the indices of price movement deduced from the comparison of official with declared values of exports of British and Irish produce, and of official with computed values of imports and of re-exports, I have reduced all to such a basis that the average for the sixteen years is in each case 100. They can thus be more readily compared and contrasted. The actual averages of the proportions of real to official value were as follow:—For total imports 134·5; for imports with re-exports deducted, *i.e.*,the retained imports, 159; for exports of British and Irish produce, 48·5*; for these

* Compare these with the following averages for the last five years of the 18th century. Total Imports, 179·6; Re-exports, 120; Retained Imports, 220; British Exports, 165·5.

same exports with manufactures of cotton omitted, but cotton yarn retained, 78·9; and for exports of foreign and colonial produce, 74·3. These figures showing the actual comparison, the relative movements year by year, are stated in the following table:—

Comparison of Indices of Price Movement, 1854-69, each index being such that the average of the period is 100.

Year.	Total Imports.	Import less Re-exports.	Re-exports.	Total Exports of British and Irish Produce.	Column (4) modified by omission of Cotton Manufactures.	*Economist* Index.	Jevons' Index.	Sauerbeck's Index.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1854	91·1	88·9	84·2	93·5	100·5	91·3	105·3	102·
1855	90·9	89·6	89·8	86·9	98·2	88·0	101·2	101·0
1856	97·2	95·2	94·2	92·3	98·0	91·8	104·5	100·8
1857	103·0	97·6	105·3	98·4	103·7	98·7	106·9	104·8
1858	88·6	85·2	92·0	88·4	98·3	88·7	95·5	91·3
1859	91·5	89·2	91·4	90·3	98·6	86·3	97·2	93·9
1860	95·0	94·3	88·5	88·7	98·4	91·4	100·4	98·9
1861	94·4	95·0	92·6	89·1	100·2	92·6	99·6	97·8
1862	104·4	105·1	111·4	106·1	102·5	97·7	100·4	101·4
1863	107·6	106·7	123·2	117·0	102·5	118·5	99·6	103·3
1864	117·5	117·7	127·7	123·7	104·6	128·5	98·8	105·4
1865	110·8	114·8	114·2	113·3	98·3	121·3	98·0	100·5
1866	109·1	112·7	104·5	111·7	101·4	121·0	103·6	101·7
1867	101·7	106·2	93·2	103·0	102·1	102·6	95·5	100·0
1868	99·2	102·4	93·2	97·1	97·0	91·0	97·2	99·4
1869	97·9	99·3	94·4	100·6	95·8	90·5	96·4	97·7

The remarkable thing in this comparison is the high level of Jevons' index in the first years of the table, and the correspondingly low level later on when all the rest are high. Sauerbeck's index shows a somewhat similar phenomenon, but in less degree. The elevation of price in 1864, which is so marked in column (6), is almost equally so in columns (3) and (4), and very considerably marked also in the first two columns. The connection of it with cotton in column (4) is clearly seen by comparison with column (5).

It will be proper, before passing on to the other part of

my paper, to compare the figures here obtained with those published by Sir R. Giffen, in 1888, in a Report on Recent Changes in the Prices of Exports and Imports. The figures refer to movements of prices of total imports and of exports of British and Irish produce. These price movements are measured by an index-number, which is obtained by multiplying the percentage variation of price of each article entering into the import or export trade by the relative importance which that article had in the trade of 1875. The percentage variations of price are calculated on the prices obtaining in 1861. Only those articles could be used for the calculation which were entered by quantity as well as by value. The comparison with Sir R. Giffen's figures is as follows, only those years being taken for which his calculations were given in the report referred to. Among the exports the articles available for the comparison covered about two-thirds in value of the whole, in most years, and among the imports a larger proportion, about four-fifths.

Comparisons of Board of Trade Index with the Index obtained in this Paper.

EXPORTS.

Year.	Board of Trade Index.	Index referred to in this Paper.		Year.	Board of Trade Index.	Index referred to in this Paper.	
		(*a*)	(*b*)			(*a*)	(*b*)
1840.....	79·14	84·38	50·05	1854.....	64·85	79·27	45·40
1841 ...	76·75	81·66	50·53	1855.....	63·05	77·46	42·17
1845.....	71·85	77·31	44·66	1857.....	66·57	81·83	47·79
1848.....	63·37	70·01	39·85	1859.....	66·20	77·79	43·86
1849.....	60·51	66·54	38·65	1865.....	89·26	77·60	54·98
1852.....	59·33	65·24	39·80	1868.....	77·22	76·58	47·14
1853.....	64·66	76·37	46·16				

(*a*) Exports omitting cotton manufactures.
(*b*) Total Exports of British and Irish produce.

IMPORTS.

1854	80·36	122·56	1859.....	79·77	123·03
1855	84·67	122·27	1865.....	94·75	149·10
1857.....	88·24	138·59	1868.....	86·89	133·41

The degree of agreement between these two calculations will be more readily appreciated by reference to the first of the diagrams than from the tabular statement. Of course, it is not an agreement in the absolute figures which could possibly be anticipated, but merely an agreement in the proportions between figures for different years. One point may, however, be mentioned, as affecting the figures of this paper, which does not affect at all the Board of Trade figures. In the latter, articles entered by value only are simply omitted from the calculation. In the former, articles entered by value only enter on both sides, and modify the effects of actual price-changes in articles where an official valuation of the quantity of goods at conventional prices on one side compares with the real value of those goods on the other. Those goods which are only entered by value occur, in fact, in the official-value computation, but occur there at their declared, not at any conventional, valuation. To show the effect of this, suppose 20 per cent of the total to be entered by value only. (This roughly agrees with the actual fact in certain years specially examined for the purpose.) Suppose that each £100 of declared value of goods entered, both by quantity and value, correspond on the average to £60 at the official valuation. The entries by value only will be £25 for each £100 of declared value, on our hypothesis, and the account will show thus: Declared value, £125; official value, £85. The official value stands, therefore, at 68 per cent of the real value instead of at 60 per cent. The effect of the influence now under notice is, in fact, to reduce the violence of fluctuation, but by an amount which varies year by year as the proportion of the goods entered by value only to the total varies. This cause of variation will not suffice to account for the discrepancies shown in the last tables.* In

* A comparison of some of the figures given in Sir R. Giffen's report of 1888 shows curious and, for our purposes, disquieting results. The values of the commodities above referred to are calculated at 1873 prices, and also at 1883 prices. Both calculations are not given for any year between 1840 and 1880. In comparing the two computations for

spite, however, of the want of precise correspondence between the result of comparing the official and declared values of the trade reports and the indices of price-variation otherwise obtained, an examination of the diagrams will show how striking is the general correspondence. It is known that in a weighted mean the weights may be very roughly assigned without seriously spoiling the reliability of the result. A practical illustration of the principle may be obtained from our tables.

For convenience I may summarise the leading points of difference between the new index of prices of exports and the old indices of general prices.

1. During the war-period the movements shown by the export index are generally opposite to those shown by Jevons' index. The latter represents, in the main, a quite different group of prices to those which go to make up the former. The circumstances of the war by no means negative the suggestion of our index that exports realised increasingly low prices in its later years. The fact, too, that cotton goods, which were, in 1800, less than a fourth of the exports (official value), became fully one-half before the war ended, adds a special influence tending to affect the export index.

2. The general tendency of the fluctuations shown by the new and old indices from about 1815 to 1869 is similar, but the change of price-level, as between the first and second halves of this period, is less, as shown in Jevons' index; still more so

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1840, we find that the use of the 1873 prices for valuing exports of 1840 shows a level of price 56·6 per cent above that of the last year given in the report, namely, 1886. If the 1883 prices are used for the comparison, the price-level of 1840 is shown as only 45·3 per cent above that of 1886. The Index Number prepared, as stated in the preceding page, gives a result intermediate between these. It is instructive to note, in confirmation of what is stated in the test that, if the goods entered by value only are included in the computation on both sides, the price-level is shown as 34·5 per cent higher in 1840 than in 1886, when both sides are valued at 1873 prices, but at 30·9 per cent higher when both are valued at 1883 prices. Possibly the indication of greater fall of prices, which the export figures dealt with in this paper give, as compared with Jevons' or Sauerbeck's indices, may be due in part to the fact that the fixed set of prices used for the official values are high compared with those of the last 25 years covered by the comparison.

as measured by Sauerbeck's, than that of the numbers representing exports. This is rather in accordance with the fact that a greater degree of economy has been realised in manufacturing processes, as compared with earlier times, than in extractive processes for obtaining raw produce. The well-known index numbers represent, in large measure, raw produce; the export index represents, in large measure, manufactured goods. In it the cost of labour is included, and this, by means of improved organisation, has decreased more rapidly than the cost of raw materials. That was, at any rate, the case during the period in question.*

3. The depression of prices, marked as being checked in 1822 in the other indices, continues till 1824 according to the new one. Referring to the years 1823 and 1824, Tooke writes: "This dull and drooping state of markets for nearly all descriptions of goods, which prevailed more or less in the last six months of 1823, and the first six months of 1824 . . . . appears to have been lost sight of in all the speeches and pamphlets referring to that period." The trade records have preserved for us a witness to this dull state of markets.

4. The recovery from the lowest point reached is shown as beginning from 1849 in the standard indices. The export index, when freed from the overpowering influence of cotton goods, marks prices as reaching their lowest level in 1852. In Sir Robert Giffen's export indices, that one of the selected years which gives the lowest figure is also 1852. Here again, too, there is partial support from Tooke, who writes: "As the

* But *cf* preceding footnote, in the light of which this statement loses some of its force. It may be suggested that a computation of the values of exports throughout the century on a basis of more modern valuations would be worth making, though very laborious. It would be instructive to compare such calculations with the results here given. Perhaps the most satisfactory comparison would be made by estimating price-changes after the manner of Mr. Bourne, valuing the trade of each year, not at a fixed set of prices, but at the actual prices of the year preceding, and compounding the results. Such calculations, if made, might throw some light on what appears to be an extreme localisation (in time) of the fall of the export index relative to the Jevons' and Sauerbeck's indices. This fall seems to be almost confined to the second half of the thirties.

general result of 1851, it was found, at the close of the year, that in almost every branch of trade and manufacture, the Range of Prices was *lower* than had prevailed for a very long period."

A detailed examination of his price lists, too, show how far this depression extends into 1852, and how it comes about that really representative indices may differ in their indication in that year. The Californian gold was neither sufficient in quantity in the first years of its discovery, nor had it had time to get fully into the channels of trade, for a stimulus to prices from that side to arise as early as 1850. At any rate, that view appears reasonable to me, especially considering that the distrust which the collapse of 1847 left behind it had not had time to become dissipated by ordinary means.

I claim, therefore, that even in its variations from the recognised criteria of price movement, the export index commends itself in some degree to our confidence, as it does also by its general agreement with these trusted standards. The official values appear to give a much better indication of the movements in volume of trade than one could have expected.

Price Changes in the Foreign Trade of France.

I have now to ask your attention to another attempt to glean some information from published statistics not systematically employed for the purpose in question. The statistics are those of the imports and exports of France. The valuation of goods in the published returns is made in accordance with a schedule of prices determined, by a commission appointed for the purpose, in accordance with current market values. The preliminary returns of the trade of each year are made on the basis of the prices used for the preceding year, and, as is generally remarked by the journals which give them to the British public, afford a comparison rather of quantity than of value. At a later period of the year a revised figure, based on a price list brought up to

date, is published. We have thus the means of comparing the effects of price changes, and of obtaining a measure of them, from the two sets of valuations. The preliminary estimate of the trade of 1897 will show the comparison of the quantity of that trade with the trade of 1896. This preliminary estimate, too, when compared with the final estimate, will afford a measure of the amount of price variation between 1896 and 1897. By bringing together such valuations for a series of years, we may get a measure of general price changes and of the changes of the quantity of trade, obtaining a figure showing what the apparent variation of the trade would have been, approximately, had the general level of price of the goods entering into it remained unchanged throughout.*

The conclusions arrived at are subject to one serious qualification. The revised estimate will differ from the preliminary figure, not merely in the prices used in framing it, but by including some corrections of quantities from the first return. If the corrections of this kind were important, we could gain nothing from instituting the comparison I describe. A rough examination which I made, a couple of years ago or thereabouts, of the actual accounts, preliminary and final, for one or two years, for the purpose of determining the importance of the qualification due to this cause, left me with the belief that, in general, the corrections are not of any considerable importance, or likely to take away the usefulness of comparing the preliminary and final returns in the manner referred to above.

The results of this comparison are given on the next page.

Excepting, of course, whatever changes in trade may be caused by a general rise or fall of prices.

Average Price-level and Quantity of French Foreign Trade compared with that of 1897.

Year.	Index of Quantity of Imports.	Exports.	Price-level of Imports.	Price-level of Exports.	Price-level of Exports of Manufactures.
1897	100	100	100	100	†
1896	95·0	92·5	101·1	103·3	100
1895	92·1	91·7	102·1	103·4	101·3
1894	95·8	83·3	101·6	103·8	101·0
1893	89·7	82·3	108·7	110·5	104·0
1892	95·4	88·8	111·0	109·6	103·5
1891	103·0	88·9	117·0	112·8	102·0
1890	92·9	92·1	120·7	114·6	101·8
1889	90·7	91·7	120·4	113·6	101·7
1888	89·2	82·5	116·4	110·7	98·7
1887	88·6	83·4	114·9	109·4	99·8
1886	87·3	81·7	121·9	111·5	101·7
1885	84·3	76·4	122·6	113·6	101·3
1884	86·8	77·5	126·4	117·2	104·2
1883	92·2	79·9	131·7	121·4	109·5
1882	89·0	81·0	137·0	124·0	109·3
1881	87·1	81·4	141·2	124·7	108·8
1880	88·6	78·1	143·6	126·5	114·6
1879	82·9	74·2	140·0	124·1	113·2
1878	75·4	74·6	140·0	121·5	114·3
1877	62·0	76·1	149·6	128·7	120 3
1876	65·9	78·1	153·1	130·5	122·4
1875	59·0	84·7	151·6	130·3	124·8
1874	56·3	77·9	157·5	135·3	129·8
1873	53·4	76·1	168·2	141·8	134·5

† The final return for 1897 was not to hand when these figures were prepared.

Alongside this table, for its better understanding, we need some idea of the nominal changes in the trade. These are stated for a few selected years below, the selection of years being such as to mark the extremes of upward or downward movement.

Actual Values of French Imports and Exports (special).
(Values in thousands of pounds).

Year.	Imports.	Exports.	Exports of Manufacturers.
	£	£	£
1897	158,240	143,920	73,607*
1893	154,148	129,455	66,767
1890	177,476	150,178	76,732
1885	163,536	123,533	63,381
1880	201,327	138,715	74,950
1873	142,191	151,492	85,703

* Preliminary Estimate.

The comparison of this table with the preceding one will show how greatly price changes modify the trade returns, so as to show a growing trade as a stationary, or even as a declining, one. As an old writer remarked, it does not at all follow that less profit can be made out of a growing trade at declining prices than out of a growing trade at steady prices. It looks as if profit is more certain in the latter case, but economies in production may yield a satisfactory profit in the face of declining prices, cheerless as the decline is.

I have specially selected the item of manufactured goods exported from France in order to illustrate the difficulty of judging of movements of price in special sections of trade from those shown by trade in general. Take the figures for 1880 and for 1896. The exports of manufactures were, in the final returns of these years, £74,950,000 and £70,670,000 respectively, an apparent reduction of about 4 per cent. The average price level of 1880 was 14½ per cent above that of 1896 (*vide* table preceding); so that, to compare quantities we should reduce the 1880 figure by about one-eighth, making it £65,400,000, and thus showing a growth in the quantity of the trade of nearly 8 per cent in place of a decrease of 4 per cent. The growth in the exports as a whole, in quantity, was, meanwhile, in the propor-

tion of 78·1 to 92·5, or about 18½ per cent. We see, then, that about half the exports were manufactures, that this half increased in quantity 8 per cent between 1880 and 1896, while the whole exports increased in quantity 18½ per cent. To bring this about, the remainder of the exports must have increased by not far short of 30 per cent, not to pretend to precision of calculation. The contrast between the 8 per cent growth in quantity of manufactures exported and the 30 per cent growth in exports of other things, mainly food and raw materials, is striking. I have refrained from introducing into the paper the calculations for these other groups of exports and for the main groups of imports, partly from pressure of time, partly not to burden the account with an excessive amount of detail.

I may add, by way of comparison, that the calculations supplied year by year to the *Economist* by Mr. Bourne, which make up an account of English foreign trade on the prices of the preceding year, show a greater degree of variation in prices than those of France here dealt with. Mr. Bourne's figures, being based on the preliminary returns, are liable to the same qualification in regard to corrections of errors in the final returns as those referred to above in connection with the French figures, though, of course, the English preliminary figures may contain fewer errors to be corrected than the French, or the opposite may be the case. On this I express no opinion, for want of precise knowledge.

In the table given, I have not included years beyond 1873, a year sometimes exercising a fatal fascination over inquirers into price movements. My reason for stopping at that stage is, not that the same mode of comparison might not be carried further back, but that the confusion which the war introduced into public departments make it almost, I am not sure that I should not say quite, impossible to pass continuously from the years after the war to those before the war in the records I have been using. To piece together two sets of figures thus separated

was a task requiring more time than could be given it under the circumstances of preparation of the paper, so that I preferred to postpone the presentation of any figures for the years before the Franco-Prussian War till a later opportunity.

One point further may be noted here, to which reference is made in Tooke's "History of Prices" (Vol. vi., pp. 655-6). The records of French trade from 1825 to 1848 were made on a fixed valuation, determined in the year 1825. The revision of this scale of values in 1848 showed a fall of 19 per cent in prices of exports on the average, and of only 2 per cent in those of imports. The prices of manufactured goods exported, forming nearly four-fifths of all the exports, fell somewhat more than the average of all exports. This is in agreement with results obtained in this paper, not indeed in the precise measure of the results, but in the direction of the changes, as illustrated in the case of another country.

Recent German Trade Movements.

Before concluding I may be permitted to give the result of an attempt to apply the method adopted with the French returns to the corresponding German figures, which are also presented first on the previous year's valuation, later on at a corrected valuation. Both because of changes in the mode of preparation of the German trade returns; and also because, before 1892, the preliminary figures were, so far as I have been able to get them, a record of weights only, not of values; for both these reasons, the comparison cannot be made except from 1891 to 1897. I have excluded the precious metals from the values used for these comparisons, and have utilised information supplied last autumn which enables the change in the mode of making up the figures in 1897, as compared with previous years, to be duly allowed for. The results are as follow:—

Price Movements and Variations in Quantity of German Foreign Trade.

Year.	Comparison with 1897 of quantity of		Comparison with 1897 of average price-level of	
	Imports.	Exports.	Imports.	Exports.
1897	100	100	100	100
1896	94·6	99·6	99·3	100·5
1895	90·1	97·6	99·6	97·0
1894	86·7	86·9	99·0	96·8
1893	80·9	84·5	106·7	103 9
1892	77·7	79·9	112·7	105·0
1891	75·8	81·0	119·3	111·3

The preliminary figures for 1898 show a growth in quantity of imports by nearly 9½ per cent, of exports by a trifle over 3 per cent on those of 1897. For comparison with these and the French figures, it may be mentioned that Mr. Bourne's calculations show a growth of about 16 per cent in quantity of British exports since 1893, when it touched the lowest point reached since 1886, as compared with the 25 per cent growth of the German exports since the lowest point in 1892, or the growth of about 16 per cent since 1893. A reference to the previous table shows that the French exports have increased in quantity about 20 per cent since 1893, when the lowest point for them since 1886 was touched, as measured by the Quantity Index. In imports the same mode of measurement shows a growth of one-third in Germany, of just under one-fourth for the United Kingdom, and a slight decrease for France in comparing 1897 with 1891, which year was, however, exceptional in the French returns. Even comparing with the years on either side of 1891, the growth of French imports in quantity is quite small. It will be an instructive exercise for anyone interested to trace in the figures the effects of the changes of French tariff policy.

I have not offered you any attempt at combining the indications of price-movement in the French import and export returns into one general figure for price-movements in France,

which might be in some degree representative of general conditions. If it can be done, I have not made up my mind on a suitable basis for accomplishing it. If I were to judge of the reliability of my figures by comparing them with figures given by Mr. Inglis Palgrave in his memorandum contained in the Appendix to the Third Report of the Royal Commission on the Depression of Trade and Industry, where an index number for France is worked out on the method adopted by the same writer in the same memorandum for England, a method consisting in modifying the Economist index by attributing proper weights to its constituents, I should not feel very confident in it. Comparison with a general index of French prices given in the United States Senate Report on Wholesale Prices, Wages, and Transportation in 1893 shows a more general resemblance in the indications of upward and downward fluctuations. My confidence that the indices obtained in this paper for French trade are not mainly the outcome of casual errors in the preliminary returns is based therefore, not on an agreement between them and other indices of French prices, but on the fact that they reflect in a very curious degree the known fluctuations of trade. It could hardly happen that errors of excess and defect would coincide so closely with the years of rising and falling trade prosperity as would be necessary to account for the figures obtained by referring them to these casual errors. The fact of the existence of such errors may prevent us from endeavouring to turn arguments on variations of a fraction of one per cent; they need not prevent some useful application of the indications afforded by our tables.

APPENDIX.

Comparison of Official and Declared Values of Exports of British and (from 1805) Irish Produce, 1798-1812.

Year.	Official Value.	Real Value.	Percentage of Real to Official Value.
	£	£	
1798	19,672,503	33,148,682	168·5
1799	24,084,213	38,942,498	161·7
1800	24,304,284	39,471,203	162·4
1801	25,699,809	39,730,659	154·6
1802	26,993,130	45,102,330	167·1
1803	22,252,028	40,100,870	180·2
1804	23,935,793	40,349,642	168·6
1805	25,402,422	41,068,942	161·7
1806	27,737,816	43,242,176	155·9
1807	25,460,744	40,479,865	159·0
1808	27,156,366	40,881,671	150·5
1809	35,606,376	50,242,761	141·1
1810	35,397,918	49,975,634	141·2
1811	24,434,275	34,917,281	142·9
1812	31,732,868	43,657,864	137·6

The real values for 1799 and 1800 are from Macpherson's Annals of Commerce, those for 1801 and 1802 from Porter's Progress of the Nation; all the other figures are taken from the Annual Finance Accounts. These figures are given in detail because of the discrepancies between the tables of different authors, McCulloch, Chambers, etc. The accounts for 1813 were destroyed by fire.

Percentage Ratios of Declared to Official Value of Exports, 1814-69.

Year.	Total Exports.	Exports excluding Cotton Manufactures.	Year.	Total Exports.	Exports excluding Cotton Manufactures.
1814.....	132·6	156·9	1842.....	47·3	76·4
1815.....	120·8	152·4	1843.. ...	44 3	74·8
1816.....	113·5	140·3	1844.....	44·5	75·2
1817.....	104·2	139·8	1845.....	44·7	77·3
1818.....	109·2	142·2	1846.....	43·7	75·1
1819.....	105·1	136·6	1847.....	46·7	75·9
1820.....	94·9	127·1	1848.....	39·9	70·0
1821.....	89·8	119·2	1849.....	38·7	66·5
1822.....	83·6	114·1	1850.....	40·7	67·5
1823.....	80·9	110·3	1851.....	39·0	66·1
1824.....	78·8	107·3	1852	39·8	65·2
1825.....	82·4	115·9	1853.....	46·2	76·4
1826.....	77·0	107·7	1854.....	45·4	79·3
1827.....	71·2	100·9	1855.....	42·2	77·5
1828.....	69·7	97·7	1856.....	44·8	77·3
1829.....	63·7	91·8	1857.....	47·8	81·8
1830.....	62·6	89·5	1858.....	42·9	77·6
1831.....	61·2	88·7	1859.....	43·9	77·8
1832.....	56·0	85·2	1860.....	43·0	77·6
1833.....	56·7	86·6	1861.....	43·2	79·0
1834.....	56·4	89·0	1862....	51·5	80·9
1835.....	60·4	92·4	1863.....	56·8	80·8
1836.....	62·5	100.7	1864.....	60 1	82·5
1837.....	58·0	92·8	1865.....	55·0	77·6
1838.....	54·1	88·1	1866.....	54 2	80·0
1839.....	54·7	91·3	1867.....	50·0	80·6
1840.....	50·1	84·4	1868.....	47·1	76·6
1841.....	50·5	81·7	1869.....	48·8	75·6

Diagrams.

The two diagrams enable the comparison of the indices relating to exports of British and Irish produce obtained in this paper with the indices of Jevons and of Mr. Sauerbeck, and also with the Board of Trade index, to be made more readily.

Both are drawn on the logarithmic plan adopted by Jevons. Instead of the differences between 60 and 63, 80 and 84, 100 and 105, 120 and 126, etc., being shown by lengths in the proportions of 3, 4, 5, 6, etc., they are all shown by equal lengths, being in each case a difference of 5 per cent. This illustration

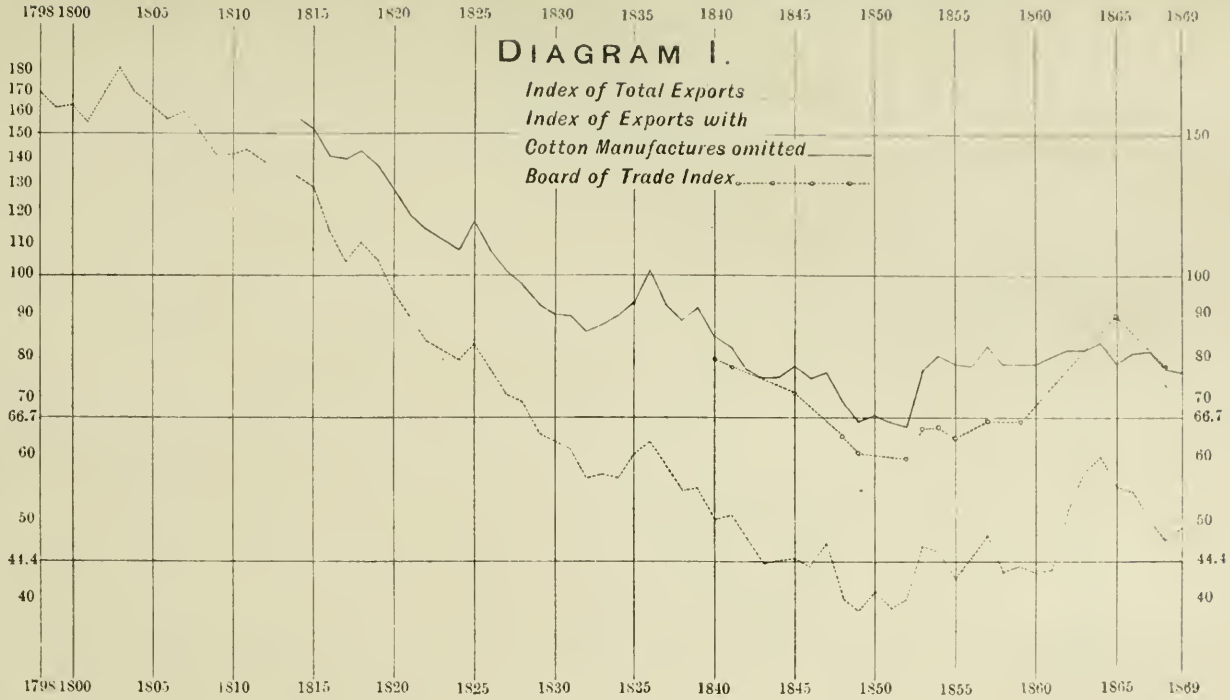
DIAGRAM I.
Index of Total Exports
Index of Exports with
Cotton Manufactures omitted
Board of Trade Index
1798 1800 1805 1810 1815 1820 1825 1830 1835 1840 1845 1850 1855 1860 1865 1869
180
170
160
150
140
130
120
110
100
90
80
70
66.7
60
50
44.4
40

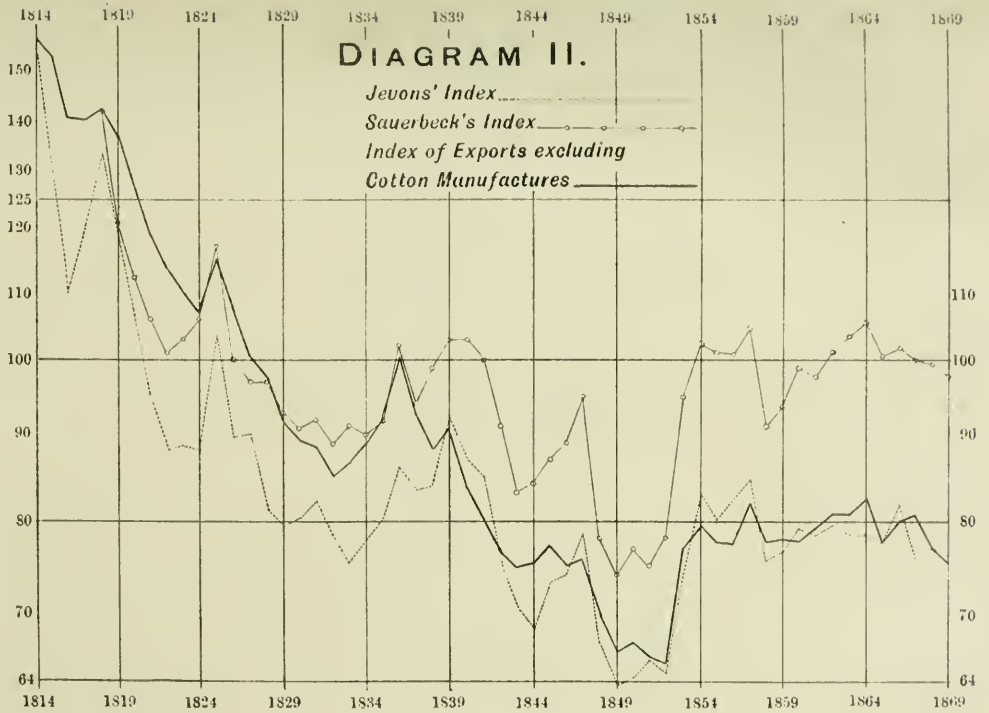
DIAGRAM II.
Jevons' Index
Sauerbeck's Index
Index of Exports excluding
Cotton Manufactures
1814
1819
1824
1829
1834
1839
1844
1849
1854
1859
1864
1869
150
140
130
125
120
110
100
90
80
70
64

indicates the usefulness of this mode of representation. To reckon the index from a different date involves no change of *shape* of the curve, only a change of level. In the ordinary mode of representation, the shape is modified as well as the level changed when a different starting point for comparisons is adopted.

In Diagram I. each of the horizontal lines shows an increase of 50 per cent on the line below it. In Diagram II. an increase of 25 per cent is shown in passing from one horizontal line to that next above it.

Diagram I. shows the indices tabulated in the appendix, the broken line showing the index derived from the totals of exports, the unbroken line the index obtained when manufactures of cotton are excluded. The second broken line on the right of the diagram is introduced to show how Sir R. Giffen's Export Index compares with those now worked out from the records of real and official values.

Diagram I. permits the comparison of the price movements shown by Sauerbeck's Index (thin line), Jevons' Index (broken line), and the Index of Exports, after exclusion of cotton manufactures (thick line).

MANCHESTER STATISTICAL SOCIETY.

Organisation of Educational Efforts in Manchester.

By Dr. A. S. Wilkins.

March 8th, 1899.

There are not, perhaps, many cities in which the discussion of the question, which I have to introduce this evening, would be less pressing and even less appropriate than Manchester. A writer in the current number of the *Edinburgh Review* says: "Educationalists in Manchester and Birmingham are wise and experienced." Their experience is beyond all question; and I, for one, have no desire to challenge their wisdom. The educational needs of this city are provided for with a completeness which, on the whole, leaves little to be desired. Certainly I have no desire to play the part which St. Michael refused, and bring a railing accusation against anything or anybody. But this does not seem to be, on the whole, an unsuitable time at which to review our requirements, and to see how they are met. The Government Education Bill does not appear likely to carry us

very far on the path of organisation. It is not for an outsider to pronounce on a question of parliamentary tactics. It may be that the time is not yet ripe for anything more than the creation of a central educational authority. But it has been, I believe, the unanimous opinion of all conferences and congresses, and guilds and associations, and bodies of every kind, which have been expressing themselves so copiously of late, that little practical good will be effected until the local authorities are set to work. No doubt the composition of these, the nature of their powers, and the extent of ground that may be covered by them severally, are questions which give rise to numerous difficulties. Whether they are to be elected *ad hoc* or to be committees of the County Council; whether, if the latter, they shall be required or only empowered to include representatives of other bodies; what share of power, if any, shall be assigned to the School Boards, to Universities, and University Colleges, or to elected representatives of teachers; what funds are to be at their disposal, and how far they are to be controlled by the central authority, all these are points on which opinion is divided, and on which I do not desire to invite discussion this evening. But let us assume that we have got our local authority, that it is reasonably limited in its range, so as to deal at most with Manchester and Salford, and the surrounding districts so far as the city and borough form their natural centre, and that it has at its command adequate funds, whether from the "whisky money," from the rates, or from other sources; and let us consider then what it could do to organise our educational system. First, what are the needs to be met? We need, of course, provision for the great bulk of our children who will have to earn their own living at an early age. This is the sphere of the elementary schools. This may be said to be completely organised. The moot problems which still remain—and I do not wish to under-rate their difficulty—are for the most part of too controversial a character to be properly discussed here. We shall all agree, I suppose, in holding

that every care must be taken that the convictions of parents as to the greater or less extent to which religious teaching, whether dogmatic or otherwise, should enter into the daily school work, should interfere as little as possible with the full enjoyment by the children of the benefits of a sound elementary education. The solution of this problem is far easier in great centres of population than in country districts. Here we have, and are likely long to have, schools meeting the needs of at least all important religious bodies. But in the country it is extraordinarily difficult to devise a system which shall be equitable to those who have made great sacrifices in the past, and, at the same time, not irritating to the susceptibilities, sometimes, but one would hope not often, justly aroused, of the representatives of minorities. Some enthusiasts speak very lightly of the difficulty of absorbing denominational schools in a universal system of publicly controlled elementary education. For myself, I have never seen any scheme propounded which steered between the Scylla of an immoral confiscation and the Charybdis of a competition, which combined equal unfairness with greater extravagance. But the children in elementary schools may be divided into three classes. There are, first, those who, from their own lack of capacity or from their surroundings must be content with the minimum of necessary education. It is impossible not to regret the existence of this class; and it is to be earnestly desired that it may diminish as rapidly as possible. No one can doubt that the great blot upon our elementary education is the very early age at which so many children leave school. What has been taught at no small cost is often very soon lost again; and both the moral and the intellectual results of education are in too many cases found to have entirely disappeared. A second class consists of those who can stay at school till they are thirteen, fourteen, or even fifteen years of age; but are of no special ability deserving to be developed. These are the proper subjects for the higher elementary teaching; and every educationalist must be entirely in sympathy with the effects, so

conspicuously successful, to give such teaching in this district with all attainable range and thoroughness. I know of no limit which can properly be fixed to the character of this education, except those due to considerations of time and capacity. Probably the best thing that a new local authority can do for our Higher Grade Board Schools will be to let them severely alone. As long as we keep children at school we are bound to do our best for them; but what the best is depends upon circumstances. It by no means follows that because four years may be wisely spent upon a certain course, two years can be best spent upon half of it. Here comes into view our third class of elementary scholars. There will always be some who, so far from stopping short at a minimum or limiting themselves to the higher elementary education, will prove themselves worthy of the very best that we can give them. In every class of the community there are some whose brains are to be counted among the richest sources of national wealth; sometimes, indeed, if not always, of incalculable material wealth. It is the grossest short-sightedness not to develop them to the very utmost, and in no way can public money be better spent than in providing for this. Here we find one of the first functions of a local authority. It should pave the way for the free passage of boys and girls of high mental promise from the elementary to the secondary stage. And this should be done by the liberal offer of scholarships, not perhaps very numerous, but sufficient in amount to provide that indigence should be no bar to the enjoyment of the best education. Two or three questions here arise. First, they should be open to girls as well as to boys. So far the disparity between the two has been enormous. In Manchester the Grammar School finds room for 160 free scholars at the least; the High School for girls for about 20. And yet he would be a bold man who would say that the community ought to be less interested in the education of its girls than in that of its boys, even from the purely economical point of view. Second, they should be tenable at any school chosen by the parent, and

recognised as efficient by the proper authority. The interest of the nation, which alone justifies the expenditure of public money, is not at all concerned with the question whether a school is carried on for private profit or no, or what religious doctrines may be taught in addition to that literary or scientific, or commercial, or technical education for which it is paying, any more than it is with the colour of the hair or the musical taste of the contractor from whom it gets its bread or its beef. In either case it must be well satisfied that the article which it purchases is sound in quality and suited to its needs.

To specify: There are, I believe, boys at the Grammar School and girls at the High School, the children of Catholic parents, who are carrying on their higher education by the aid of public endowments. If there are others who are debarred from doing so by conscientious objections to the "atmosphere" of these two great schools, and if, as we are assuming, it is a matter of national and not individual interest, that the best brains of the country should be trained for its service in the best way possible, I do not see why a public scholarship should not be tenable at any school which will give the required training. The cry of indirect endowment may be raised, but I do not think we need regard it very seriously.

A third question of great importance is, at what age these scholarships should be competed for. This seems to me to bring us to the very heart of the difficulty of the differentiation of elementary and secondary education. If it is true that a boy or a girl ought to be taught different subjects in a different way between the ages of twelve and fourteen, according as he or she is or is not to continue a regular education after the age of fourteen, then the question answers itself. The scholarships should be competed for at twelve and not at fourteen. In this conclusion I have the weighty support of some of the most experienced and capable of the headmasters of Higher Grade Board Schools. It is, of course, an act of no little self-denial for them to pass on to other schools pupils whom they might well keep for

two or three years longer in their own; but such self-denial is at times an imperative duty. From twelve to fourteen is, as a rule, a time at which the curricula of elementary and secondary schools tend to diverge more and more, and a boy will bear transplanting much better at the earlier than at the later age. Something may perhaps be done to lessen the divergence; as for instance, by the later introduction of Latin in our secondary schools, a change which may, I think, be defended for other reasons. As a rule, if I am rightly informed, a boy coming from an elementary school at the age of twelve to the Manchester Grammar School does not find himself ill-prepared for his work; but every year later makes this less the case. Hence we may attach great importance to the recommendation of Mr. Bryce's Commission, that scholarships from the elementary to the secondary school should be gained generally at the age of eleven or twelve. It may be objected that to offer them thus would be to deplete the higher grade elementary schools of the best of their material; but this would be to a very small extent. The scholarships would not be numerous; those only would be encouraged to compete for them who were likely to continue their education for some years beyond the limit of their original school; and plenty would be left to fill its classes, so that its own proper standard need not be at all depressed.

Then follows a question which has been keenly discussed, as to the proper relation between secondary and technical education. The report of Mr. Bryce's Commission was very definite in its judgment, though less clear perhaps in the reasons which it adduced. It maintained that secondary education is the genus under which technical instruction falls as the species, that the former simply comprehends the latter. The question of definition is perhaps slightly academical. I see no more reason for saying this than for maintaining that the University education is the genus and the professional the species. The one is the basis on which the other must be built. But what is of vital importance to our educational system is that what is commonly known as

technical education should be regarded as based upon a sound higher elementary education, but not as taking the place of secondary education. On this point no one has spoken with more strength of conviction than Mr. Reynolds, the director of technical instruction in Manchester. He tells us that boys come to him singularly unprepared to take advantage of the curriculum. It will be the business of a local authority to see to it that so far as possible the magnificent technical schools of Manchester and Salford shall be supplied with boys who *are* able to take advantage of their curriculum; and shall not be forced to do work which should be done elsewhere. Here again the question of scholarships is of some importance. On the one hand, it is obvious that subjects which have an immediately practical value do not need fostering so much as those whose function is more purely educational. On the other hand, the whole system of offering scholarships drawn from public money for open competition, and, indeed, of spending freely on buildings, appliances, and teachers, is justifiable only (as has already been noticed) in so far as we believe that education is of direct advantage, not only to the individual, but to the nation. Hence there is something like a consensus of opinion that some scholarships should be offered at this stage also—say, at fourteen or fifteen—to boys or girls passing from a good elementary school to a technical institute, or, I should add, from the general to the specially technical classes of a secondary school. For instance, if it is found practicable to establish classes forming a fairly complete course of technical instruction—by which is meant instruction directly bearing upon the pupil's future occupation in life—in the various public girls' schools, I do not see why these scholarships should not be tenable in such classes, provided always that their efficiency is satisfactory to the local authority. But, again, I would urge that the scholarships should be comparatively few in number, and comparatively large in amount. As Mr. Roby says, "it is not desirable to force up boys who have not got capacity and industry [and I will insert here

what I suppose he means, 'decidedly above the average'] into a totally different stratum to which they are not used, and where they will not move with ease." And when we find these exceptional capacities they will as a rule indicate that the possessors require something more than technical training. Their place will be much rather in the University colleges, which can alone provide a thorough scientific basis for the task of leaders, not workmen in industry and commerce. For such the normal course should be through the secondary school to the University.

The main work of technical education, it seems to me, must always be to make a man (or a woman) better fitted to do his own work, and not to take him away from it. Hence, if we look to the conditions under which this education must be given, I think we shall admit that the great bulk of it must always be in the shape of evening classes. The increased intelligence, the wider knowledge of science as applied to industries, the greater familiarity with the methods of manufacturing or commercial business, with accounts, with shorthand, with modern languages, with the laws of the production and distribution of wealth—all these can be, and in the great majority of cases must be, gained while the students are already earning their daily bread. Hence the fact should be frankly recognised, that it will only be the few who can afford time for anything like a complete secondary education before they proceed to technical instruction.

Perhaps this is the best point at which to consider what should be the relation of the local authorities to primary education. For the present they could hardly have any. The work of elementary education is committed to School Boards specially elected to do their work, and, in cities and towns at any rate, competent to do it. But the history of primary education in this country, and, perhaps, we ought to add, the profound differences between great religious bodies as to what is just and necessary for that education, seem to make it hopeless that School Board elections should for generations to come be anything but the arena for political and sectarian struggles. Is it con-

ceivable that those who are elected because they are doughty champions of party views should be the best body to organise and correlate the various parts of that system of higher education, from which it is our most earnest aim to eliminate partisan struggles altogether? Sir John Gorst apparently thinks that it is. He said at Bradford that he was in favour of but one local authority for educational purposes, though he afterwards seems to have qualified his language by saying that it would be quite impossible for the system to be carried on unless primary and secondary authorities were so closely in unison as practically to form one body. As "closely in unison" as you please; "unison" and "harmony," if differing in musical technique, are, I suppose, virtually equivalent in political diction; and everybody admits that the greatest care should be taken that all our educational authorities should work in the utmost possible harmony. But if Sir John Gorst means that no one should take a part in controlling and developing our secondary education, unless he has gone through the ordeal of a sectarian struggle, where the determining forces are anything rather than competence for this special work, then I think that he is maintaining a paradox, in which few, I hope, would be found to agree with them. Mr. Bryce's Commission, it is true, felt itself debarred from entering on a question which did not seem to come directly within its cognisance; but it would surely not have elaborated with such pains its suggestions for the composition of local secondary education authorities if it had thought that such a simple method as that of handing the whole matter to the School Boards would solve the question. It is hardly needful to point out what resistance such a proposal would find in its financial side from County Councils and County Borough Councils, out of whose hands it would take all the funds so far available for the development of secondary education. Hence one is not surprised to find that, in spite of Mr. Yoxall's able memorandum, no opinion has been expressed in favour of a simple transference by any who stand outside the circle of thorough-going champions of School

Boards. The local authorities contemplated in Sir John Gorst's bill of 1896, which broke down on the question of areas, were to deal with primary as well as secondary education; but they were to take over the duties of School Boards only by consent, or when these were in default. One point at any rate seems to be clear, that a local authority which is to control secondary as well as primary education must deal with a much wider area than that commonly assigned to a School Board. Whether there might not be important subsidiary advantages in such an extension, as indicated by Lord Spencer, is a very interesting question, though this is perhaps not the place to discuss it. It is hardly needful to add that we need not be precluded from agreeing heartily in Mr. Wyatt's contention that those who have most interest and experience in the working of elementary schools should have the fullest opportunity of making their influence and their judgment felt on questions of secondary education. They are mainly concerned with the supply of the material; they know its needs and its capacities; and they can give invaluable and indispensable counsel as to how the two stages can be linked together and made continuous.

The question may perhaps be raised—What should be the relation of the local authority to the governing bodies of the various institutions which it aids? The constitution of these differs so widely in different cases that it is hard to lay down any general rule. But, wherever it is possible, it would doubtless be of advantage that it should be directly represented, just as the committee of the Manchester Museum, in recognition of the subvention of the Corporation, has been strengthened by the addition of three members of the City Council. This would secure that there should always be found on the local authority members familiar with the work and sharing the responsibility for the efficiency of the assisted institution. Otherwise there should be as little interference as possible.

Something should perhaps be said here as to one essential extension of the functions of the local authorities. The funds

supplied by the Customs and Excise Act and by the Technical Instruction Act have been commonly restricted to the aid of those devoting themselves to certain branches of education, which are undoubtedly extremely, but by no means the only, important ones. The County of Lancashire, for example, offers 21 scholarships in science, art, music, commerce, agriculture, and horticulture, each of the value of £60 for three years, besides five junior scholarships of £30 for the same period for agriculture and horticulture. But can it be seriously argued that the profession of education is of less importance to the national welfare than that of music or of horticulture? We are told on high authority that there are many pupil teachers of great ability who are prevented by want of means from completing their education at the training colleges. Could any better use of scholarships be imagined than one which should aid such cases? It is true that some County Councils have given scholarships tenable by students in training colleges, and that the Technical Instruction Board of the London County Council has given bursaries to teachers who are being trained at Oxford and Cambridge, and at the Maria Grey College, as well as in the training department at Bedford College; but it seems somewhat doubtful whether in doing so they have not exceeded their powers. All doubt on this point ought surely to be removed, and it ought to be recognised as one of the duties of the local authority to assist in the technical training of teachers. And here I should like to go a little further. It is well known that the creation within the last few years of Day Training colleges, immense as has been the service which they have done to elementary education, especially in its higher stages, has brought with it a heavy burden on those University Colleges with which they have been connected. The Government grants for the students have fallen very far short of the necessary and growing expenses of the Department. Is it too much to hope that local authorities may be empowered and encouraged to follow an example set, if I am not mistaken, by the city of Liverpool, and expressly sanctioned by Sir John Gorst's

bill of 1896, and to make a substantial grant, not only in the way of scholarships for students, but also directly for the expenses of those who are to train them?

It is not possible to pass over altogether a question which has long been smouldering, and which threatens before long to burst into a blaze. Is it true that a very important part of the problem before us has already been settled illegitimately, if not illegally, by the intrusion of the bodies charged with elementary education into the sphere of that which is in the fullest sense secondary? The fact that the ground has already been largely occupied cannot be denied. When Higher Grade Board Schools habitually and very successfully prepare their pupils for entrance examinations at the Universities, there can be no question that the education which does this is not elementary. Whether this is an intrusion, and, if so, whether it is illegimate, are questions on which I do not wish to pronounce an opinion; but I may venture on two remarks. First, it seems hardly creditable to a Government Department that it shall not have made up its mind whether, or if so, how an opinion which it stated very definitely ten years is to be enforced; and that all doubt on the matter ought to have been long ago removed. Second, that very good reasons will have to be produced before the public will be content to see schools, which have been of incalculable benefit to thousands of children, to whom, as far as one can gather from statistics, an advanced education would otherwise have been unattainable, cramped, and fettered, if not entirely destroyed, by a pedantic interpretation of the letter of a code, which, after all, is not a divinely inspired production. It may be possible, and if so I think it is desirable, that the curriculum for these pupils who are to end their school days at 15 or 16 should be clearly differentiated from that of those who are to continue it to 18 or 19, with the possibility of a University course to follow it. But on one thing all educationalists will agree, that with whatever differences each should be as good of its kind as circumstances will allow.

On the much-discussed subject of over-lapping it seems difficult to say much of a general character which can be of any profit. Of course it is absurd that the money of the ratepayers should be wasted in maintaining a competition between two public institutions, each doing the same kind of work for the same class of pupils under the same conditions, with double the teaching staff and appliances which would be necessary with better organisation. But then, it is equally absurd to deny that much similar work must of necessity be done, if either institution is to carry out its own course with thoroughness and efficiency. The Incorporated Association of Head Masters, and the Association of Higher Grade Schools and Schools of Science, arrived at the beginning of 1898 at a compromise "based on the principle of differentiation rather than delimitation"; and the points of difference are to be the aim of the school and economic school-age conditions. The phrasing is very impressive, especially the first clause of it; and doubtless it conveys its meaning clearly to the two bodies of extremely able and thoroughly practical men who adopted it. But one would like much to see it applied in a few current cases before making up one's mind how far it is likely to be of definite service.

It is perhaps too early to say as yet how the *concordat* between the educational authorities of this city will work in the long run. The warmest acknowledgment is due, as has already been recognised, to Mr. Alderman Hoy and Mr. Reynolds, on the one hand, and to the Dean of Manchester and Mr. Wyatt on the other, for the patience, skill, and absence of self-seeking with which they attacked the most difficult part of the problem, and suggested how the magnificent buildings soon to face each other in Whitworth Street might be worked in harmonious co-operation, so as to supplement each other in the interest of this great community. The authorities of Owens College, the Grammar School, the Hulme School, and the High School for Girls are yearly advancing to a more complete understanding

of their several aims and possibilities of usefulness. I end, as I began, with the expression of the conviction that, when we get our local authority, its work will not be revolutionary, but will mainly consist in fostering and generously supporting educational endeavours which are already developing under the most promising auspices.

MANCHESTER STATISTICAL SOCIETY.

On the Statistics of some Lancashire Industries.

By Dr. James Niven, Medical Officer of Health for Manchester.

Read April 12th, 1899.

The observations which I am about to make to you are, I am quite aware, altogether unworthy of the traditions of the Society, and must be regarded as merely preliminary to a study of the question which you have asked me to consider. When I undertook to give a paper on the industries of Lancashire, I was hopeful that I should be able to give some time to a study of the actual conditions under which these industries are carried on. This I have, so far, found it impossible to do, from lack of time and opportunity, but at all events a consideration of the subject has made quite clear to me the mode in which the subject must be attacked if any real profit is to be derived.

In approaching such a question as the health conditions of Lancashire industries, the first thing to do is to consider what

statistical facts we possess. We can then see how far these facts fail to elucidate for us the injurious conditions attaching to our industries, and what considerations are requisite in assessing their significance; finally, how the statistics may be improved, and how we must proceed to obtain a working knowledge of their value.

First, then, what are the special industries of Lancashire, and the number engaged in them?

We may readily obtain an idea of the numbers employed in Lancashire from the Annual Report of the Chief Inspector of Factories and Workshops for the year 1897.

Over the whole of the United Kingdom there were employed in textile industries in 1896, 1,077,687 persons, of whom 412,841 were males, 664,846 females. Of these, 439,643 were in Lancashire, the great bulk of whom were, of course, in the cotton industry.

In other non-textile industries, carried on in factories, Lancashire stands at the head of the list with 383,007 persons, although London makes a good second with 324,077 persons. As regards industries pursued in workshops, London easily heads the list with 140,694 persons, while Lancashire comes second with 74,198 persons, and the West Riding third with 38,316 persons.

From the same source we gather that, outside the cotton factories which contain the great mass of industry in this country, there is a comparatively large production in various other branches of industry, which I have collected in a brief table.

Table 1.—Extracts from the Annual Report of the Chief Inspector of Factories and Workshops for the year 1896, showing the number of persons in a number of industries employed in Lancashire in the year 1896.

	No. in 1896.	Increase or Decrease from 1895. Per cent.	Order as Regards number Employed	Chief Counties.
Total number employed in Textile Works	439,643	−1·1	1	
Number in Non-textile Factories	383,007	+9	1	
Number in Workshops	74,198	+13·2	2	London
NON-TEXTILE FACTORIES.				
Gas	6,543	+	2	London
Indiarubber & Gutta-percha	6,210	+	1	
Sawmills, Carpenters.	15,339	−	1	then London
Bricks and Tiles, not ornamental	4,117	+	2	Kent
Glass	9,536	++*		then W. Riding
Metals—founding and conversion of	23,621	−	4	West Riding Stafford Lanark
Engineers, Machine and Boiler Makers, Smiths	95,506	+++	1	
Ship and Boat Building	6,905	+	6	Durham Northumberland Dumbarton Lanark London Kent
Coaches, Wagons, &c.	9,806	++	1	
Wiredrawing	1,560	+	2	West Riding
Plumbing, Gasfitting, &c.	2,881	++	4	West Riding London Warwick
Alkali Works	5,485	−−	1	then Chester
Soap and Candles	3,649	++	1	
Other Chemical Works (includes dyes, drugs, &c.)	4,996	+	1	
Cabinet, Furniture, Household Utensil makers, and Upholsterers	7,351	++	3	Warwick London
Food Stuffs, 1—7	14,560	++	2	London
Brewers, Maltsters, Distillers, Beer-bottlers	5,892	+	3	London Stafford
Tobacco, Snuff, and Cigars	7,347	+	2	London
Print, Bleach, and Dye Works	53,171	+	1	then W. Riding
Clothing	23,439	++	4	Leicester London West Riding
Clocks and Watches	1,136	++	2	Warwick
Paper, Printing, Stationery	27,076	++	2	London
Fustian-cutting	2,535	−	1	then Chester

* ++ Denotes considerable increase. +++ Very marked increase.

It must not be supposed, however, that this list of occupations which have taken especial root in Lancashire, in any way expresses the great mass of industry to be found in this county, and in order to make this clear, I have collected and added to the above from the census figures for 1891 a number of the occupations more numerously represented in this county, but not having any special claim to be represented as Lancashire industries or occupations.

TABLE 2.—Extract from the census of 1891 showing the number of persons, male and female, employed in Lancashire in the chief groups of occupations.

	Males.	Females.
Domestic Servants	2,417	120,421
Inn. Hotel Servants	5,203	6,258
Broker	6,727	...
Commercial Traveller	6,849	...
Commercial Clerk	40,290	1,832
CONVEYANCE OF MEN, GOODS, AND MESSAGE.		
On Railways	26,708	...
On Roads	49,138	...
On Canals, Rivers, and Seas	40,039	...
In Storage	7,430	...
Messages and Porterage	28,425	...
Engine and Machine Maker	7,705	144
Millwright	1,432	...
Fitter and Turner	15,102	...
Boiler Maker	6,707	...
Spinning and Weaving Machine Maker	12,773	...
	43,719	...
HOUSES.		
Carpenter and Joiner	26,778	...
Bricklayer	12,008	...
Mason	10,049	...
Plumber	7,550	...
Painter, Glazier	16,652	...
	73,037	...

Food and Lodging.			
Innkeeper, Hotel Keeper, Publican	6,216	.....	1,859
Lodging-house Keeper	923	.....	6,345
	7,139	.....	8,204
Food.			
Butcher, Meat Salesman	11,319	.....	917
Baker	7,434	.....	1,389
Grocer, Tea, Coffee, Chocolate-maker, Dealer	19,260	.....	7,217
	38,013	.....	9,523
Woollen Cloth, &c.			
Woollen Cloth Manufacture ...	4,563	.....	5,245
Silk, Satin, Velvet, Ribbon Manufacture	1,823	.....	2,892
Cotton.			
Cotton, Cotton Goods Manufacture	178,175	.....	281,799
Cotton, Calico—Printer, Dyer, Bleacher	20,903	.....	4,263
Draper, Linen Draper, Mercer	6,781	.....	5,745
Dress.			
Hatter—Hat Manufacture	4,865	.....	4,813
Tailor	13,920	.....	10,060
Milliner, Dressmaker, &c.	529	.....	49,451
Shirt Maker, Seamstress	310	.....	7,734
Shoe, Boot, Patten, Clog Maker	15,942	.....	2,020
Indiarubber, Waterproof Goods Worker	2,214	.....	1,355
Paper Manufacturer	3,305	.....	1,597
Miners.			
Coal Miners	77,509	.....	2,037
Ironstone Miners	3,066	.....	...
Gasworks Service	4,894	.....	...
Stone, Clay, and Road Making.			
Stone Quarries, Cutters, Dressers	4,836	.....	...
Brick, Tile Maker, Burner, Pavior, Road Labourer	3,308	.....	..
Platelayer, Railway Labourer, Navvy	9,943	.....	...
Glass Manufacture	6,944	.....	761

Iron and Steel.			
Blacksmith, Whitesmith	16,652	.....	...
Other Iron and Steel Manufacturers	41,637	.....	...
General Labourer	84,690	.....	...
General Labourer.			
Engine Driver, Stoker, Fireman (not Railway, Marine, nor Agricultural)	14,370	.....	...

Total above ten years of age 1,434,446 males, 1,574,004 females.

These tables may be summarised thus:—

The industries in which Lancashire takes a clear lead are (1) Cotton manufactures, with a population of operatives returned at the census of 1891 as males 178,175, females 81,799, making a total of 459,974.

(2) The founding and conversion of metals, with a number of operatives, in 1896, given as 23,621; and the allied classes, engineers, machine and boiler makers, smiths, numbering 95,506. Total, 119,127.

(3) Coal miners, numbering at the census 77,509 males and 2,037 females.

(4) Print, bleach, and dye works, numbering, in 1896, 53,171.

Lancashire also takes the lead in certain smaller industries, viz., in the manufacture of glass, in the making of coaches and waggons, in alkali works, in soap and candle making, and in other chemical works, including the manufacture of dyes and drugs, in fustian cutting, in the making of felt hats, in india-rubber and gutta percha manufacture, which flourishes chiefly in Manchester, and in saw mills and carpentering.

As regards some other industries, the county, though not in a leading position, comes second. In the production of gas it follows London, in the making of bricks and tiles of a non-ornamental character it follows Kent, in wiredrawing it comes after the West Riding, in cabinet, furniture, and household utensil making, and upholstering, it comes after Warwick and

London; in the production of foodstuffs it is only exceeded by London, which is the case also with the making of tobacco, snuff, and cigars; and also with the classes of work grouped under the terms paper, printing, and stationery. In the making of clocks and watches Lancashire furnishes most artisans after Warwickshire, and in the group of occupations designated as brewers, maltsters, distillers, and beer bottlers it follows London and Stafford.

The second table, which gives a summary of the number of persons employed at the census of 1891 in the chief industries of the county and otherwise, is necessary, in order that we may understand what a vast number of persons are supported by these industries, servants, commercial men, warehousemen, clerks, distributors of food and clothing and articles of luxury, persons engaged in transport service, labourers, builders, plumbers, lawyers, clergymen, doctors, and so forth. This will serve to emphasise the value to the community represented by the health of our artisans.

Again, it is by no means a matter of indifference in considering the health conditions of the industrial classes to ascertain how they are distributed over the county. I have, therefore, abstracted from the census returns a statement of the distribution in April, 1891, of those employed in our chief industries, so far as the principal towns are concerned. This is an important matter, and may not be overlooked in assessing the mortality of occupations.

It will be seen from the death-rate at the foot of the preceding table that the industrial classes are probably living under very different general sanitary conditions, which will certainly affect the mortality of the industrial occupations, as the death-rates will, in turn, be affected by the industrial mortalities.

In endeavouring to ascertain what are the conditions of health of Lancashire industries our path is statistically very much smoothed by Dr. Tatham's recent supplement so far as males are concerned. We shall not lose very much in our estimate of

TABLE 3.—Abstract from the Census showing the Distribution throughout the Large Towns of the Chief Lancashire Industries, and Death-rate abstracted from Registrar-General's Returns.

Occupations.	Stockport.		Liverpool.		St. Helens.		Wigan.		Warrington.		Bolton.		Salford.		Manchester.		Oldham.		Rochdale.		Burnley.		Blackburn.		Preston.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
Cotton Goods' Manufac. of..	4489	7626	259	411	..	..	983	4103	193	103	9586	13968	2815	9061	5123	15754	12978	17419	5527	8306	12240	15211	158.6	23404	9774	18607
Hat Manufacture	2764	1682	..	..	..	..	..	..	..	..	..	..	78	308	490	1416	55	28	..	..	..	..	..	..	..	..
Engine and Machine Fitters	..	..	1392	..	..	..	..	..	..	..	..	..	1058	..	2515	..	1735	..	575	..	..	..	..	..	..	..
Boiler Makers.....	..	..	2053	..	..	..	..	..	..	..	..	..	..	..	1077	..	..	..	..	..	..	..	..	..	..	..
Shipwrights (iron)	..	..	2280	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Iron and Steel Manufac.....	499	8	4172	55	..	..	1219	7	2345	6	4360	15	3390	36	10020	125	5417	12	1566	9	908	3	1658	7	1384	6
Alkali Manufac.	..	..	..	..	1716	2	..	..	..	..	..	..	..	..	572	30	..	..	..	..	..	..	..	..	..	..
Coal Miners	55	1	39	4	4153	167	5850	87	..	..	785	3	807	1	688	.	661	1	179	2	2086	1	258	..	44	1
Glass Manufac.	..	..	..	..	4845	573	..	..	..	..	..	..	..	..	791	63	..	..	..	..	..	..	..	..	..	..
Fustian Manufac.....	..	..	..	..	..	..	..	..	102	1223	..	..	196	314	258	323	..	..	..	..	..	..	..	..	..	..
Wire Workers	..	..	..	..	..	..	..	..	1020	7	..	..	187	21	620	65	..	..	..	..	..	..	..	..	..	..
Spinning & Weav. Mach Mkr.	..	..	2053	..	..	..	..	..	..	..	945	148	573	37	1906	154	1978	107	463	10	410	1	638	7	541	5
Cotton, Calico (dyers, bleach)	378	107	..	..	..	..	..	..	..	..	915	494	2458	329	3098	476	50	11	172	47	164	27	58	5	10	1
Tailors	308	189	2614	2444	..	..	230	731	167	27	439	84	693	712	3611	3736	330	246	295	51	223	72	457	144	506	94
Cabinet Makers, &c...	..	..	..	1914	496	..	..	..	..	..	..	..	578	120	2563	624	..	..	..	..	..	..	..	..	..	..
Boot, Clogs, &c.....	320	19	1942	361	201	14	233	14	211	27	506	34	746	113	2781	480	496	34	366	22	354	15	531	23	576	60
Factory Labour (undef.)....	..	..	512	180	..	..	..	..	..	..	..	..	1002	51	3029	422	112	2	57	3	105	5	36	2	81	8
Woollen Cloth Manufac.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1584	2068	..	..	..	..	..	..
Average Annual Death-rate for five years, 1894-8	21·5		24·7		19·9		21·3		18·9		21·0		23·2		22·6		19·5		19·5		19·1		19·6		21·8	

the effect of occupations by the limitation to males, except in respect of the cotton industry, in which, however, the limitation is an important one.

The figures furnished by Dr. Tatham enable us to compare different occupations as regards the number of males employed in them, and also as regards the distribution of those males according to their ages. He then gives the death-rates per 1,000 living at different groups of ages, and compares these with the death-rates at corresponding groups of ages of all males, and of all occupied males.

Further, he gives comparative mortality figures at ages 25-65 for a number of different occupations, and finally, by a little adaptation of his figures, he compares the occupational mortalities in 1860-61-71, 1880-2, and 1890-2.

The figures thus given relate, it is true, to the whole country, and we are doubtless making an assumption not strictly accurate in applying to Lancashire the figures obtained by bringing together artisans from different parts of England. We have, however, no option, and I therefore proceed to excerpt the necessary data.

TABLE 4.—Showing the years of life lived at different age groups by male persons engaged in certain occupations during the three years 1890-92.

	Total 15 and upwards.	15	20	25	35	45	55	65 and upwards
All males	26,943,327	4,395,525	3,742,038	6,267,030	4,833,231	3,575,367	2,310,372	1,819,764
Occupied males	25,392,135	4,185,732	3,668,295	6,147,030	4,714,230	3,426,093	2,072,076	1,178,679
Do. Industrial Districts	5,499,885	914,073	821,745	1,397,370	1,072,512	732,954	394,914	166,317
Brewer	76,881	5,592	9,531	21,792	18,069	12,633	6,576	2,688
Hatter	46,749	8,805	8,274	11,640	8,727	5,010	2,688	1,599
Engine, machine, boiler, maker, fitter, millwr'ht	520,188	96,771	86,268	130,560	100,485	66,876	29,982	9,246
Metal founding and conversion	607,617	102,942	94,551	155,205	122,943	80,178	38,661	13,137
Cabinet-maker, &c.	229,101	35,715	31,740	58,056	45,654	32,076	17,121	8,739
Sawyer	68,277	8,397	7,881	14,877	13,101	11,142	8,268	4,611
Manufacturing Chemist.	58,176	6,204	8,235	15,759	13,137	8,979	4,302	1,560
Cotton, flax, linen	538,077	133,545	93,411	133,356	86,001	54,096	27,648	10,020
Cotton—Lancashire	444,513	111,441	78,417	211,243	71,022	43,881	21,342	7,187
Dyer, Printer, &c.	109,710	20,241	18,528	28,446	18,522	12,729	7,593	3,651
Glass manufacture	65,505	16,359	11,046	15,642	11,634	6,876	2,994	1,044
Coal mines—Lancashire.	218,670	40,524	37,437	59,379	42,501	24,957	11,085	2,787
Gasworks	91,881	3,828	9,948	28,383	25,053	15,654	6,771	2,244

*

TABLE 5.—Showing the death rates for England and Wales at groups of ages in the years 1890-92 of the males engaged in certain occupations having special reference to Lancashire.

Death Rates 1890-92.	Total 15 and upwards.	15	20	25	35	45	55	65 and upwards
All males	..	4·14	5·55	7·67	13·04	21·37	39·01	103·56
Occupied males	..	2·55	5·07	7·29	12·43	20·66	36·66	102·32
Do. Industrial districts	..	3·05	5·53	8·65	15·94	27·82	50·15	120·44
Brewer	..	2·68	5·56	10·83	19·04	30·79	54·44	129·09
Hat er	..	2·04	5·92	6·96	15·35	24·75	43·90	
Engine, machine, boiler, maker, fitter, millwr'ht	..	2·89	5·25	7·10	12·43	23·78	46·43	125·70
Metal founding and conversion	..	3·21	6·12	8·81	15 81	28·50	55·30	142·55 157·04
Cabinet-maker, &c....	..	2·46	4·76	6·94	13·08	21·11	38·72	101·16
Sawyer	..	3·22	4·95	4·84	9·54	15·44	35·32	126 65
Manufacturing Chemist.	..	4·51	6·68	8·44	16·67	30·29	62·53	117·31
Cotton, flax, linen....	..	3·73	5·96	8·13	13·38	25·11	55·06	168·55
Do. do. Lancashire	..							
Do. do. generally	..	3·55	5·95	7·17	12·83	24·68	52·55	159·08
Dyer, Printer, &c.....	..	4·74	7·23	10·90	16·14	28·05	57·95	169·82
Glass manufacture.....	..	3·24	6·43	11·32	17·88	32·14	60·79	172·41
Coal miner—Lancashire.	..	4·15	5·45	6·40	11·74	22·76	51·33	153·57
Coal Miners — England and Wales.....	..	3·82	5·62	6·29	9·63	19·42	43·79	146·43
Gasworks	..	4·70	5·23	7·22	10·98	23·70	50·21	124·78

The comparative mortality figure is constructed in the following manner. It was found that for the years 1890-92 the number of men living between ages 25-65, which gave 1,000 deaths per annum, was 61,215.

Of 61,215 men, age 25—65 at the census of 1891, there were

22,586	in	the	age group	25—35
17,418	,,		,,	35—45
12,885	,,		,,	45—55
8,326	,,		,,	55—65

Applying to each of these numbers the death-rates already given under the respective occupations, and adding the resultant deaths, we get the comparative mortality figure for the occupation.

In this way we find that for the occupations selected the figures were:—

TABLE VI.

All males	1,000
Occupied males	953
Unoccupied males	2,215
Occupied males, industrial districts	1,248
Brewer	1,427
Hatter	1,109
Engine, &c., maker	1,070
Metal founding, &c.	1,301
Cabinet makers, &c.	979
Sawyer	708
Manufacturing chemist	1,392
Cotton, flax, linen	1,141
,, Lancashire	1,176
Dyer, printer, &c.	1,370
Glass Manufacturer	1,487
Coalminer, Lancashire	1,069
Gas works	1,077

We are now in a position to consider the relative mortalities holding in different occupations, and if the mortality figures were calculated for 1890-92 in the same manner as on former occasions we should be able to compare the conditions of different occupations at the periods 1860-61-71, 1880-82, and 1890-92. The figures are not, however, calculated in the same way, having been formerly taken in 20-year periods. However, by a little manipulation of the figures, it has been found possible to compare the death-rates in these occupations at ages 25-45 and 45-65. The result of this comparison appears at first sight somewhat startling. Generally speaking, the death-rates in different occupations in the period 1890-92 as compared with the period 1880-82 has diminished at ages 25-45, and increased at ages 45-65. For this seeming anomaly the explanation no doubt is that the epidemic of influenza in the years 1890-92 bore very heavily on the older men. It will thus be seen that an element was then introduced which greatly perturbs the comparison. That this is the explanation of the heavy increase is shown by the fact that the same

thing holds of occupied and unoccupied males generally. The increase in the death-rate at ages 45-65 is much greater than the decrease at ages 25-45, which is indeed slight. In fact, in a number of the trades there is a considerable increase in the death-rate in the earlier as well as at the later ages over the years 1880-82.

Amongst those industries are numbered brewers, engine makers, metal founders, dyers and printers, glass manufacturers, and coal miners. In all of them the death-rates are not only increased at higher ages, but are considerably increased at ages 25-45. With regard to the other trades enumerated in Table VI., hatters and cabinet makers are practically unaltered; sawyers have a lower death-rate. No comparison is made in respect of manufacturing chemists, nor of gas workers.

As regards the cotton industry, no figures are given for 1880-82, so that the comparison cannot be made.

Thus in nearly all the special Lancashire occupations the change is for the worse at the younger as well as at the more advanced ages by comparison with 1880-82.

By comparison, however, with the years 1860, 1861, and 1871 a decided improvement is shown at the earlier ages by brewers, hatters, engine makers, cabinet makers, sawyers, cotton operatives, and coal miners.

As regards dyers, printers, etc., the comparison is unfavourable to the later period, as is also the case with glass manufacturers.

For manufacturing chemists there is no comparison.

From the unfavourable comparison in most of these industries with 1880-82 at the earlier ages, coupled with the general improvement at these ages, the suspicion is awakened that the artisans in these occupations age rapidly, and that this is the reason why influenza (assuming the perturbing influence to be the same at the earlier as at the later ages) was more severe on certain occupations at the earlier ages than on others.

The correctness of this surmise may be tested by reference to

other occupations. If it be correct, then the notoriously-severe occupations should show a death-rate at 25-45, in the period 1890-92, higher than for the same age period in 1880-82, while the lighter occupations should show a lower death-rate.

Selecting, then, from Dr. Tatham's list of occupations those which show a high mortality figure, we get, for 1890-92:— Publicans, 1,642; inn servants, 1,725; tool, scissors, file, saw, and needle makers, 1,412; slaters and tilers, 1,322.

These are all the additional occupations for which the mortality figure exceeded 1,200, and in three of them there was a considerable excess in the mortality at ages 25-45 in 1890-92 over that holding in the earlier period; the reverse being the case with the inn and hotel servants. This holds good, however, for the combined inn-keepers and servants.

This seems to be a striking confirmation of our suspicion that the employments which are heavy on life, also age the remainder rapidly, since there is a lowering of the death-rate at the age period 25-45 in the period 1890-92 in nearly all the occupations with lighter mortalities.

Looking down the list, indeed, one finds this to be the case with groups 1, 2, 3, 4, 5, 6, 7, 8, 9, etc., etc.

The comparative figures for different periods are, in their complete form, more useful in another way. When we find the occupations having certain relative mortality figures for 1890-92 we are doubtful whether some of them may not occupy undue prominence owing to temporary causes. This doubt we can set at rest by examining how the occupations stand to each other at the previous periods, and the result is to give us increased confidence in the figures for one period, such as 1890-92.

After this diversion we can now return to the Lancashire occupations which we have selected with a view to closer scrutiny and sifting of their significance. In appraising the effect of a given occupation on the mortality of the operatives as shown by death-rates, we have to remember that there are various factors which may easily confuse us, and lead us to false conclusions.

An occupation may be unhealthy owing to causes entirely outside the industry, such as unhealthy dwellings, even where good wages are earned. I will not say on account of the climatic conditions, because I believe it to be doubtful whether, in Lancashire at all events, climatic conditions have much to do with health—with one exception. The rainfall in this county is heavy, and, providing the conditions of the soil are favourable to the growth of injurious micro-organisms, this increased rainfall will favour the death-rate dependent on such growth. Still more will this cause come into operation if the houses are two-storeyed cottages with free access of damp from the soil, as is generally the case with Lancashire houses up to recently. This resolves itself, however, into unhealthy conditions in and about the dwellings.

This I believe to be a factor of the very greatest importance. Lancashire is the home of the midden and pail systems of collecting excreta, which pollute the soil near to the houses, and exhaust the air with their organic effluvia.

The older houses are in general without damp-proof courses, which in our climate means that much of the foul liquid in the soil soaks into the interior of the houses and there serves as pabulum for the germs of disease. Houses formerly built on tips are without any adequate protection from the fœtid air beneath.

How much these causes have to do with the death-rate can only be surmised, but their influence must be considerable. As regards the collection of excreta, I give here an extract from an inquiry by Dr. Scurfield, of Sunderland, into this subject:—

"Tables A and B (not quoted) show the death-rates from typhoid fever (including continued fever) and diarrhœa, and from all causes in 24 water-closet towns, and in 33 towns in which the number of privy middens is more than 5 per cent of the population. It will be noticed that the average 'Fever' rate in the privy-midden town is nearly double that in the water-closet town; that the average 'Diarrhœa' rate in the privy-midden town

is slightly more than double that in the water-closet town; and that the average general death-rate in the privy-midden town is 2·4 per 1,000 higher than in the water-closet town. Here, again, the rates given are the averages for the years 1890-95 inclusive."

Outbreaks of typhoid fever have recently been assigned to the condition of the midden privies in Middlesbrough and Stockport, and the prevalence of this disease has been assigned to fouling of the soil by Dr. Hill (of Birmingham), Dr. Littlejohn (of Sheffield), Dr. Scurfield (of Sunderland), and Dr. Robertson (of St. Helens). Numerous outbreaks of fever have been found in intimate association with improper storage of excrement.

Turning to statistics, we find from our tables that the 72,890 coal miners in Lancashire in the middle of 1891 had a much higher death-rate than the average of coal miners throughout England and Wales. It is difficult to avoid the suspicion that this is due, in part at all events, to their conditions of habitation. One can hardly suppose that the arrangements for the ventilation of mines are less adequate in Lancashire than elsewhere. So far as the figures show, they are not an intemperate class. They earn good wages. Yet at every age-group but one—20-25—they have a death-rate decidedly in excess of that amongst coal miners generally. Nor is this due to accidents, though they come next to South Wales in the number of accidents.

Meantime, again referring to Table V., we perceive that at every age-group Lancashire cotton operatives have a higher death-rate than attaches to cotton operatives throughout the country. If we consider that the number of cotton operatives in other parts of the country is comparatively small, we must conclude that the health of cotton operatives outside Lancashire is far superior to that of operatives in this county.

It does not follow, however, that this is owing to conditions of life outside the factories. Another factor here intrudes itself.

How many of these outside factories were new, and built with good facilities for ventilation, and with other conveniences for the operatives? If we assume that this is not a large element,

and I think we may, then here also we are led to think of the conditions of habitation as being possibly a chief cause of the difference.

2. An occupation may appear unhealthy from the fact that owing to one cause or another it does not attract the best class of artisan. It is somewhat invidious to single out occupations, and characterise them in this fashion. I will, therefore, evade the difficulty by stating simply what were the occupations of people living in the common lodging-houses of Manchester, as ascertained by an inquiry which the Chief Constable was good enough to make for me in this year.

Extract from an enumeration of occupations of persons lodging in the common lodging-houses of Manchester in the year 1898, giving all occupations with more than 100 persons.

Labourers	1,919
Hawkers	638
Tramps	441
Flower sellers	122
Newsvendors	148
Railway porters	155
Hotel porters	121
Carters	178
Joiners	100
Stablemen	151
Shoemakers	196
Tailors	117
Mechanics	162

This cause of confusion will not, to any material extent, influence the Lancashire industries which we have selected.

3. An occupation may be unhealthy because either directly or indirectly it is productive of habits of life injurious to health.

This is another factor productive of much difficulty.

The high mortality amongst brewers, and the enormous fatality amongst publicans and their servants, admits of but one interpretation, viz., intemperance. We are on perfectly safe ground, then, when we assume that any class which has a

high mortality, and which is also intemperate, owes much of the high mortality to intemperance.

Let us assume, to begin with, that we can tell when a particular industry is intemperate from the mortality figures for that class from alcoholism and liver disease, but for the sake of a more complete view, let us add some other causes of death intimately connected with excessive indulgence in alcohol. We get thus the comparative mortality figures of the under-mentioned occupations in 1890-92 from the classes of disease named.

	Alcoholism.	Liver Disease.	Suicide.	Phthisis	Bronchitis.	Pneumonia.	Nervous Diseases.
All Males	18	29	15	122	88	107	102
Occupied Males	13	27	14	185	88	105	82
Do. Industrial Districts	19	32	16	223	154	178	108
Brewer	41	59	17	273	114	144	125
Publican, &c.	92	201	32	259	83	158	169
Publican's, &c., Servant	106	62	25	476	119	197	108
Hatter	23	59	28	301	64	111	86
Engine, &c., Maker	10	31	9	195	99	141	102
Metal Founding, &c.	12	30	14	195	164	248	113
Cabinet-Maker, &c.	14	24	15	248	93	96	90
Sawyer	11	21	13	123	58	80	77
Manufacturing Chemist.	7	23	13	162	249	204	98
Cotton, &c.	10	25	18	202	150	156	114
Do. Lancashire	9	27	19	200	159	172	123
Dyer, Printer, &c.	10	38	17	261	152	176	128
Glass Manufacturer	24	30	17	295	222	188	155
Coal Mines, Lancashire..	5	17	13	102	172	187	70
Gasworks	7	21	11	183	142	160	76

On the evidence of these statistics, taking first the test of deaths from alcoholism, we should have to declare that the operatives in the following industries were addicted to excess of alcohol: brewers, hatters, and those engaged in the manufacture of glass.

Taking, jointly, alcoholism and liver disease, we might, in addition, taking occupied males as a standard, affirm that this was the case in regard to engine, etc., makers, metal founders, and those employed in dye and print works. We should not be able to say, however, that there was any great excess. The following classes would be characterised as temperate: persons employed in gasworks, coalminers, cotton operatives, manufacturing chemists, and sawyers.

These are, however, very doubtful conclusions. The standard is a very low one, for this reason: A medical man will hesitate to put down alcoholism as the cause of death in the case of a skilled artisan, and will record a secondary cause, where he would state his conviction in the case of an unskilled labourer.

We may thus be perfectly certain that brewers, hatters, and glass makers are intemperate, but we are far from certain that some of the other classes are not. In fact, intemperance is probably very prevalent amongst metal founders and engine-makers. The figures, however, show a greater prevalence amongst cotton operatives than I had supposed, and we must, on all counts, accept coalminers as a temperate class of men.

Having regard, now, to other causes of death, suicide would single out as intemperate hatters, cotton operatives, dyers and printers, glass makers, and brewers, agreeing generally with the direct test.

Phthisis is specially predisposed to by intemperance, though, of course, other causes have a powerful influence. The mortality from phthisis is greatest in hatters, cabinet makers, cotton operatives, dyers and printers, and in glass makers.

This gives the same industries as before, except that cabinet makers, etc., stand very high. This is probably because the class includes upholsterers, and I have elsewhere given reasons why we should expect a very high death-rate amongst upholsterers from this cause.

Applying now the test of nervous diseases, we find that this singles out brewers, engine makers, metal founders, cotton operatives, dyers and printers, and glass makers. The very high death-rate amongst glass makers from this cause is partly due, no doubt, to the use of lead.

The death-rates from bronchitis and pneumonia are so largely due to influenza during this period, that it is safer not to use them in this connection. It may be noted, however, that the industries suffering from the greatest excess of lung diseases,

viz., manufacturing chemists and metal founders, have no corresponding excess of phthisis, although glass makers have, and that cabinet makers, etc., while suffering heavily from phthisis, are but lightly affected by other chest diseases. The two classes of affection are, in fact, not necessarily correlated, even in the presence of injury to the lung.

From the above considerations, taken together, I conclude that intemperance plays a decided part in producing the excess of mortality among brewers, hatters, glass makers, and, to a less extent, amongst cotton operatives, metal founders, engine, etc., makers, and persons employed in dye and print works.

Alcoholism is not, however, altogether to be dismissed as an evil inseparable from the occupation. The great abstraction of moisture from the body in the case of glass makers, metal founders, and hatters urges them powerfully to the consumption of great quantities of beer. Nor would it seem that any other liquid can easily be made to take its place.

There are also other habits connected with occupations which are injurious; for example, the habit of cotton operatives to go to and from their work in the scantiest of clothing. This could surely be remedied.

4. An occupation may be unhealthy because it is inadequately paid, or, what amounts to the same thing, because it is precarious in its tenure. In so far as this condition attaches to any occupation, it is a source of much suffering and evil. It is amongst the class dependent on casual labour that intemperance plays havoc, and when fluctuations of industry throw large numbers out of employment, it is manifest that the casual class—by whatever specific name the individuals may go—is largely recruited. Happily, the Lancashire industries are comparatively free from this unfortunate condition.

5. An occupation may be unhealthy on account of the character of the workshops and factories, their want of ventilation, or other insanitary condition, and not from anything inherent in the character of the processes.

This is true of many workshops; and it applies to the older mills. Hence the condition of the artisan is improving where an industry flourishes, and is at a standstill or deterioration where the industry is decaying. This is a very important factor in producing a high death-rate, and one more amenable to improvement than any other.

Referring now to Tables III. and IV., we can eliminate the conditions of housing and atmospheric conditions, in part at all events, by taking as our standard the death-rates in the industrial districts, rather than those of all males.

When we do this we observe a great difference in occupations. Those whose conditions are determined to a large extent by alcoholism have low death-rates at the ages 15-20, viz., brewers, hatters, cabinet makers, and engine makers.

The death-rate at this age is not high in metal founders, glass makers, and sawyers.

It is high for manufacturing chemists, dyers and printers, in gas works, and also, though not so high, amongst coal miners and in the cotton industry. We may infer that in the first three of these there are specially injurious conditions at work. In coal mines the young hands are more liable to accidents, while the work is very severe, and in cotton factories the early incidence of mortality may be due to the early age at which labour commences.

The industries having at this age a higher mortality than that of the industrial districts generally are, in order, dyers and printers, manufacturing chemists, gas workers, coal miners, cotton workers; then glass makers, sawyers, and metal founders.

At ages 20-25 the following have death-rates above the standard of the industrial districts:—Dyers and printers, manufacturing chemists, glass makers, metal founders, and cotton operatives.

At ages 25-35 those above the standard are, in order:—Glass makers, dyers and printers, brewers, and metal founders. At ages 35-45: Brewers, glass makers, manufacturing chemists, and

dyers and printers. At ages 45-55: Glass makers, brewers, manufacturing chemists, metal founders, and dyers and printers. At ages 55-65: Manufacturing chemists, glass makers, dyers and printers, metal founders, cotton operatives (Lancashire), brewers, and coal miners. At ages 65 and upwards: Glass makers, dyers and printers, cotton operatives, metal founders, coal miners, engine makers, brewers, sawyers, hatters, and gas makers.

Thus, from the very commencement of work, certain occupations are marked out as being relatively unhealthy, and remain so at all ages.

These are dyers and printers of cloth, manufacturing chemists, glass makers, metal founders; and it is evident that, in addition to other influences, the work is in itself *directly* injurious. The important classes amongst these, in point of numbers, are dyers and printers and metal founders.

At the early age of 20 the occupation of brewer begins to be relatively unhealthy, and remains so through all subsequent age-groups, being especially unhealthy at the middle periods of life. The injury to health in this occupation is doubtless indirect.

Cotton operatives show a high mortality relative to industrial males generally at the ages 15-20, and to a much less extent at ages 20-25, then they exhibit a considerably lower death-rate at the middle period of life up to the age of 55, after which they again show an increasingly higher death-rate.

The excessive mortality at ages 15-20 is probably due to the early age at which cotton operatives commence work. It is a real occupational excess, but it is doubtful whether it implies more than that these young people have the strain of life imposed upon them early, besides sharing in the increased opportunities for infection offered by mingling with a large number of other operatives. It is a statistical testimony in favour of advancing the age of admission.

It may here be pointed out that the high death-rates of coal miners, dyers, manufacturing chemists, and gas workers at ages 15-20 is in part fallacious, being due, in part, to the fact that the

operatives do not start work till they are 17 or 18, so that the death-rates belong really to a more advanced age than is represented by 15-20.

With regard to the increased mortality at ages beyond 55, the strain of attention, the high temperature, and the tremendous noises of a cotton mill, especially in the weaving sheds, must all tend to age a cotton operative prematurely. On referring to the years of life concerned in Table IV., it will be seen that beyond 65 the number of males engaged in the cotton industry is very small, and many of these no doubt are employers. It may, I think, safely be assumed that the better lives amongst the operatives have left the mill before the age of 60, which will form a factor in causing the high death-rate at later ages.

Coal miners exhibit in their mortality figures precisely the same relation in reference to industries generally that cotton operatives do, although, with the exception of the age-period 15-20, their mortality is at all ages considerably under that of cotton operatives. The work at that age is very severe, and the death-rate is fallacious, as we have seen, not to mention the element of accidents.

I would refer you to the short table of mortality for a closer study of the facts, which you will easily gather from it. It should be read in connection with the years of life on which it is founded; the years of life being mentally divided by 3 to give an idea of the actual numbers employed. You will note, for example, that the metal founders of ages 65 and upwards bear to the metal founders of ages 25-35 the ratio of about 1 to 12; for engine makers the ratio is about 1 in 14; for Lancashire cotton operatives it is less than 1 in 15; for dyers and printers it is about 1 in 8; for sawyers it is somewhat less than 1 in 3; and for coal miners in Lancashire it is 1 in 21. It is evident that the relative mortality figure of an occupation will be unduly lowered when the proportion of old people engaged in it is high, and that the mortality ratio of sawyers will thus be made to appear unduly low compared, for example, with that of coal miners.

It is thus necessary to check impressions derived from the mortality figures of occupations by reference to the death-rates at different ages, and to the numbers employed at those ages.

It has been already stated that no estimate of statistical information is of much value without an actual knowledge of the conditions. I have, therefore, visited a cotton spinning mill, and a cotton weaving shed, a large iron foundry and conversion establishment, an establishment in which bleaching of cotton goods with chlorine, dyeing, calendering, finishing, making of flannelette, and making up are carried on, a glass factory and tobacco manufactory, while for manufacturing chemicals and coalmining I have been able, where my memory was defective, to have recourse to our chemical smoke inspector, Mr. H. M. Rowe. The processes of hatting, again, I have not been able to see, and I am obliged for a description of the work pursued in that department of industry to one of my clerks, Mr. Ernest Dunks, who was himself a hatter some eight years ago.

In these ways I have been able to compile observations on the chief features of some of these industries, which, however, I find will be too long for this paper. The remarks on the cotton industry will therefore be allowed to remain, while only striking features of the other industries will be alluded to.

Cotton spinning involves a number of different occupations, which might be supposed to involve widely different degrees of danger to health. The first process is unpacking the bales, and mixing of the cotton. The chief strain here is on physical strength, which, however, in large mills is avoided by the use of machinery. After this the cotton undergoes the processes of scutching and carding, which result in the dirt being got rid of and the cotton being arranged in slivers with the fibres imperfectly parallel. The sliver is then transferred to the drawing frames, where it is rendered uniform by doubling, while the fibres are made parallel by drawing. When finished the sliver is dropped in a can or wound on a bobbin. The

sliver then undergoes a process of slight twisting in the slubbing and in the intermediate and roving frames, when it is ready for the various processes of drawing and twisting involved in spinning.

One would be inclined to think that the atmosphere of the carding room, filled with cotton fibre and dust, would be the most unfavourable condition to which cotton operatives are exposed. But the high temperature maintained in the spinning rooms is no doubt enervating. There can be no doubt, at the same time, that where provision is made for a sufficient supply of fresh air per individual the spinning room can be made a comparatively wholesome place. Where this is done, however, the large amount of air passing through the room and rising on its way to a higher temperature would be too dry both for spinning and for health. The difficulty can be overcome, however, by injecting a proper amount of steam in the path of the entering air.

I have enquired of Her Majesty's inspector of factories in this city, Mr. Rogers, whether any great improvement has taken place in the ventilation of cotton factories in this district in recent years, and I gather that, in his opinion, no improvement of any magnitude has taken place. There is, however, no reason why the spinning and other rooms should not be adequately ventilated, all that is needed being fans in suitable positions. There is, as a rule, spare power sufficient to work such fans. At the same time, it would be necessary to supply the entering air with a regulated supply of steam. It would also be necessary to warm the air to a point not too far below the temperature desired in the room, so that the requisite amount of moisture should be present.

With regard to the carding room, Mr. Rogers informs me that he does not think that any great improvement has occurred so far as the presence of cotton fibres in the atmosphere is concerned, although, no doubt, the dust is more readily removed

than was formerly the case. One must suppose that the inhalation of such fibres is injurious, but how injurious it is not easy to tell. The degree of injury will depend on the extent to which the fibre dust is removed, and on the extent to which the process of scutching has cleaned the fibre before it gets on the carding machine.

There can be no doubt that the processes of working up cotton waste must be injurious to the operatives, although there are no exact statistics on the subject.

The only tolerably successful effort that I know of to differentiate the various occupations pursued by cotton operatives has been made by Dr. James Wheatley, the Medical Officer of Health for Blackburn, who, having access to the last census materials for Blackburn, utilised them to separate the different classes of cotton operatives, and to estimate their mortalities. The results of this inquiry are given in a paper published in "Public Health," Vol. VIII., to which I will presently return.

When the thread is finished with in the spinning room, it is then passed on to the winders and warpers, to be placed on bobbins and frames, preparatory to weaving, operations attended with a considerable production of fibre dust. But these operations must be regarded as comparatively healthy. The thread is then sized, the sizing being charged with a high proportion of China clay, where goods are intended to be heavily sized. Further, in order to prevent the size from mildewing, chlorides of zinc, magnesium, and calcium are added. As a result of these operations, there is liable to be a considerable amount of clay dust in the weaving sheds. Also, such threads would be brittle unless the atmosphere of the room were kept moist by steaming, and the condition of the atmosphere was formerly both distressing and deleterious to the weaver, although the Cotton Cloth Factories Act, 1889, by regulating the amount of moisture permitted at different temperatures, and by placing it within the power of the operative to see that these conditions are fulfilled, has unquestionably greatly improved the condition of steaming in sheds for the better.

Dr. Arlidge summarises the conditions unfavourable to cotton operatives as follows: Dust from the cotton itself in the early processes of manufacture; heat, with more or less watery vapour, combined in the weaving department with dust from the Cornish clay employed for sizing; long standing, and a stooping posture in the spinning and doubling department; monotony of work; continuous strain upon the attention, and excessive noise with vibration of machinery, especially in the weaving sheds. To these must be added vitiated air, from excessive consumption of gas, from overcrowding, and general defects of ventilation. The cotton manufacture is more unhealthy than the woollen. The dust of wool is less irritating to the respiratory passages; clay sizing is not practised; and overheated rooms are an exception, whilst free access of air is needed in most departments.

It will be seen that the chief direct sources of injury in this occupation are the defective ventilation and high temperature of the spinning and weaving sheds, and the presence of dust, especially in the carding room, where fine fibre dust is abundant, owing, in part, to the frequent cleaning of the machines. The amount of injury inflicted varies, however, greatly in different mills. Thus, take a large modern mill. Here the scutching or blowing room is comparatively free from dust, and the women are under comparatively healthy conditions. The carding room, though there is much fibre floating about, is comparatively cool. The drawing and roving frame room is free from dust, but warm. These departments are worked by women. If fine counts are spun the temperature of the spinning rooms is high, say, 85 deg. Fah., and the percentage of moisture will be about 50. This atmosphere is rather dry for the operatives. With coarse counts the temperature is lower, and the percentage of moisture is higher, both conditions favourable to the operatives.

If the mill is small, scutching, carding, and drawing are all performed in one room, so that the operatives have the disadvantages of these rooms in combination.

Be the spinning rooms large or small, ventilation is generally defective, both on account of the difficulty of maintaining the requisite percentage of moisture in a large volume of air, and because the passage of a considerable amount of air is liable to make the thread dirty. Thus, when air is driven through the spinning rooms by a fan, it must be passed through wetted matting to take out the dirt.

We thus see that it is not easy to ventilate these rooms. Such ventilation implies taking all dirt out of the air, warming it, and injecting steam or otherwise moistening it to give the percentage of moisture necessary, at all events for spinning, if not for the welfare of the operative.

Then, again, spinning coarse counts is harder work than spinning fine counts, as the mule moves much faster. Hence, as in Oldham, in the former class of work, men preponderate in the spinning room; in the latter, as in Bolton and Manchester, women preponderate, and men have a higher mortality than women.

The *personale*, in fact, differs widely in the mills. Where ring spinning is used the work is done by women, and it is said that the increased motion in ring spinning causes the rooms to become warmer than with mule spinning. Some parts of the work, such as twining, are carried on in a cool room, and are free from injurious influences.

Then, again, weaving sheds vary widely. Where, as with calicoes, the threads are sized with China clay and loaded with salts, the room being artificially steamed, the atmosphere is warm and dusty, and must be unwholesome. Where, however, the cloth does not require to be heavily sized, and where a mixture of tallow and flour is used, there is no need for artificial moisture, and the sheds are cool and free from dust. In both cases the work is done mostly by women.

We may now glance at Dr. Wheatley's statistics for Blackburn. He does not separate the sexes, and his numbers are too small to allow him to do so. From the Census of 1891 he obtains

the number of weavers, spinners, winders and warpers, cardroom hands, and other cotton operatives respectively at ages 10-15, 15-25, 25-35, 45-55, 55-65, 65 and upwards, and he makes an estimate of the death-rates of each group, at each of the ages mentioned, for the years 1889 to 1895. At every age-group weavers in Blackburn have a considerably lower mortality than spinners, with the exception of the ages 55-65; and at every age-group also the death-rate of cardroom hands is lower than that of spinners, although, with one exception, it is higher at each age-group for cardroom hands than for weavers. Moreover, at each age-group up to 55-65 the death-rate of weavers is considerably below that of the population generally, whereas that of cotton spinners is higher than the death-rate of the population generally, except between the ages 35 and 55. This is probably to be accounted for largely by the fact that women—and weaving is to a considerable extent a woman's industry—have at most ages a lower mortality than men. This consideration will go far to explain the higher death-rate of spinners as compared with carding-room hands.

In connection with this inquiry Dr. Wheatley made a number of determinations of the amount of carbonic acid present in the atmosphere of factories, workshops, and schools.

In 4 factories without mechanical ventilation he found an average of 1·8 per 1,000 parts by volume of carbonic acid; in 13 factories with mechanical ventilation he found an average of 1·1 per 1,000. In 22 workshops he found an average of 2·3 per 1,000. In 20 schools he found an average of 1·6 per 1,000. All these amounts are excessive, although greater for workshops and schools than for factories.

In the course of his paper Dr. Wheatley throws out the valuable suggestion that the operatives in steaming sheds should have a cloak-room apart from the sheds, where their clothes may be kept dry. This has been embodied in the Cotton Cloth Factories Order of 1897.

Dr. Sergeant, the Medical Officer of Health for Lancashire,

who has given considerable attention to this subject, is of opinion that the best mode of admitting moisture into weaving sheds is by evaporation from a large surface of water than by the injection of steam or the spray from the drosophore. The particular method employed, however, will depend on the temperature aimed at. What is wanted is the impulsion of a sufficient amount of clean air through the rooms, heated to the degree required, and charged with moisture which should not exceed 80 per cent nor fall below 60 per cent, and which should be supplied in a well-regulated manner to an extent checked by two wet and dry bulb thermometers, as prescribed by the Cotton Cloth Factories Act, 1889. The improvement of ventilation is the most important matter. A great advance has been made by the order under the Cotton Cloth Factories Act, 1897, which fixes a maximum of 0·9 per 1,000 of carbonic acid in steaming sheds.

As regards the dust of the carding room, when clean this is probably not very injurious, especially if breathed through the nostrils, but an effort should be made to brush the dust from the machines in such a manner as to catch it in the cleaner. It is still too abundant, and fresh efforts of ingenuity are required in the improvement of the carding machine. The dust of China clay dispersed in weaving, printing, and packing is a more serious matter, and I am unable to suggest what can be done in regard to it except to discontinue this mode of sizing cotton goods.

The 600 cubic feet of fresh air prescribed by the Cotton Cloth Factories Act, 1889, for each operative is undoubtedly too little, and, although efficient ventilation would be expensive, it is of such vital moment to the operative that no effort should be spared to secure a sufficient change of air in the mill.

Cotton operatives should not be permitted to work without first having had a substantial breakfast. Further, they should not be permitted to go to or return from the mill, except in summer, without ample clothing to protect them.

The age of admission to the mill needs to be advanced.

Glass Factory.

The chief departments here are—

1. Mixing the ingredients required to make glass, which, in the glass works visited by me, contained litharge. This is liable to produce lead poisoning, but is damped before mixing to prevent it flying about. In the same room are cleaned old bottles, etc., preparatory to the glass being remelted. The room was rather sloppy.

2. Melting the glass in pots arranged round a central dome. Here the workmen consisted of glass blowers and their assistants. The materials which I saw made were gas globes, water basins, flower vases, etc. This occupation is very laborious, on the assistants especially, and both the blower and his assistant are exposed to a very high temperature. The blower has also a considerable strain on his lungs. At the week end the assistants are also allowed to practice blowing, provided they do not waste glass. The occupation is not a dusty one during the four days on which the furnaces are in full operation. On Friday to Monday glass blowing is suspended, and fresh charges of glass are prepared. The skilled workman in this department has thus three days a week free. On the four working days he works 12 hours a day in two shifts, and the work goes on continuously day and night. There will thus be four shifts in the 24 hours. As the materials are finished they are placed on the annealing rail, and gradually pushed on to a cooler place. By the Factory Act, 1878, no child under 14 or woman may be employed in this department. There is more exposure to heat, and more effort in plate-glass works and in bottle-making works than in the works which I visited.

3. Grinding, polishing, and ornamentation of glass is carried on in a separate workroom. These operations are carried on by means of rotating discs of hard stone, by aid of other materials. A rough surface is given by pressing the glass on the disc, on which falls water containing sand. This is rendered smooth by polishing on the disc with water, but the opacity is

not removed. The opacity is removed by polishing on wood with putty powder. Formerly the polishing with oxide of lead was a source of much danger to the operatives; now this work is done in the expanded mouth of a vertical tube down which the dust is drawn by a powerful fan, and the workmen all go to this wheel to polish their glass.

4. Ornamentation with copper discs and emery powder is also carried out so as to be innocuous. The chief disadvantages at glass works are the night work and the great heat in the melting department. The work of the young hands is also very hard.

Hatting.

The making of felt hats is chiefly carried on in Denton and Stockport. So numerous are the divisions of employment here that all that can be done is to enumerate them and such disadvantages as attach to them. The following applies to the making of wool hats.

The cleaned and combed wool arrives at the hatters in rolls, and is put through the various processes mentioned in the left-hand column.

DISADVANTAGES.

Processes.	
The picking machine	Evolution of much dust.
Forming machine	Fed by a man, finished by a woman. Here also there is considerable dust.
Hardening Machine	Much noise, and great escape of steam. Men.
Planking	Men and boys. The hands are much shrivelled.
Proofing	Treatment with shellac and resin. Men and boys.
Dyeing	Men.
Blocking	Very warm and wet work, and very laborious. Strong Men.
Pressing	Young men.
Finishing	Young men and boys. The dustiest occupation in the business. Mortality from chest disease said to be high in this department.
Curling	Men.
Shaping	Men.
Trimming	Women and Girls.

All these operations are conducted in separate rooms in large establishments, except curling and shaping. The wages are good, but very irregular. There is no doubt whatever that much intemperance prevails, due, in the opinion of Mr. Dunks, to the irregularity of the work.

Conversion of Metals.

In making wrought iron out of pig iron the great feature is the exposure to the high temperature of the puddling furnaces and of the red-hot metal. But the work requires also great strength and dexterity. Thirst is excessive, and is most agreeably slaked with beer.

Moulders have intermittently to undergo exposure to very high temperatures, and in the act of moulding there is a considerable exposure to sharp dust.

Manufacturing Chemists.

This term involves many occupations of varying degrees of danger, and no general description can be given. As an example of dangerous occupations we may take the old process of manufacture of soda ash and chloride of lime, and the manufacture of sulphuric acid.

Soda Ash.

Here we have first the making of salt cake in a furnace by the admixture of salt and sulphuric acid. The workman is more or less exposed to the fumes of hydrochloric acid given off. The salt cake is then transferred to the black-ash furnace, where it is mixed with coke and limestone, and worked up in the furnace by the workman. Here there is exposure to a very high temperature. The lixivation of the black ash offers nothing especially injurious, nor does the making of caustic soda from the black ash, except the danger of burns from caustic lime and soda.

The hydrochloric acid given off in the salt cake furnace is led to a tower charged with bricks or coke, down which flows a

stream of water which takes up the hydrochloric acid. It is then treated with manganese dioxide, and chlorine is given off, which is led over trays of caustic lime, with which it combines to form bleaching powder.

Evidently at every stage of this manufacture the gases are very irritating to the lungs, unless the greatest care is exercised. The two stages of the occupation especially irritating are the spreading and the slacking of the lime preparatory to the action of the chlorine, and the subsequent removal of the bleaching powder. It is only by wrapping up the nostrils in several folds of cloth that the strongest men can endure the vapours, and they can only remain in the chambers for a short time.

The occupation is not only very irritating to the eyes, skin, and lungs, but it is very exhausting, and the workmen are in consequence addicted to the excessive use of alcohol. Gassing with chlorine occasionally occurs. The teeth are destroyed, and appetite fails.

Dr. Arlidge suggests that the operatives should wear a light helmet of some material not acted on by chlorine, and that fresh air should be pumped through it, while a protective covering (of gutta-percha) should be provided for the body.

In the manufacture of sulphuric acid the chief sources of injury are the fumes of sulphurous acid given off by the burning of pyrites, which contain a certain amount of copper and arsenic. Some persons are more sensitive than others to sulphurous acid. Far more dangerous, however, is the exposure to the acid fumes in cleaning out the sulphuric acid chambers.

In making nitric acid also there is some degree of injury from exposure to nitrous fumes.

The manufacture of bi-sulphide of carbon is another dangerous industry. It is, however, especially in its employment in rubber manufacture that this substance has attracted attention. It produced formerly, and probably still produces, illness marked by headache, giddiness, excitement which may be maniacal, convulsions and paralysis. Sterility and loss of sexual power may

be produced, and the mind may become enfeebled. Nor was this illness exceptional in its occurrence. By the provision of hoods communicating with a downward tube, into which the vapours are drawn, it is believed that the evils attending this process have been largely removed.

In many other chemical manufactures, also, and notably in the making of red and white lead, as well as in the use of salts of lead, there is very great danger to health. To all these special regulations apply.

Enough has been said to indicate that the manufacture of chemicals entails, now here, now there, special dangers to health, for which in each case provision must be made.

Dyeing, Bleaching, and Printing.

These terms include so many varieties of work that it is impossible to give anything like a general idea of the injuries liable to be produced.

Take, however, printing of calicoes.

The first step is the singeing of the cloth, which is liable to be offensive and irritating unless carefully conducted.

The bleaching and washing operations, again, must be injurious where a large amount of chloride of lime is used.

The dyeing room is full of steam, and the atmosphere here is necessarily injurious. The hands of the artisans are liable to be much injured.

The processes of calendering and finishing involve a certain degree of heat, but do not appear to be necessarily injurious, especially if a sufficient current of air is passing through the rooms.

The sizing of the cloth will produce subsequent injury in the making-up rooms and in the warehouses through the injurious dust given off.

This industry is notable as being the one in which the proportion of half-timers employed approaches most nearly to that

in the textile industries, occupying a position about midway between these and most other industries.

Where sulphurous acid is employed in bleaching, the fumes of that gas will exercise their usual injurious effect on respiration.

These observations are, in the light of the statistics, manifestly imperfect, and, indeed, I have become painfully conscious at every step that in order to interpret the statistics usefully, it is necessary, not merely to go over some one establishment typical of an industry, but to obtain access to and study a number of factories in each industry, exhibiting, not only the different modes in which this is conducted, but also the different conditions under which the same mode of manufacture is carried on. Without such direct observation, statistics are only a skeleton, unindued with flesh and blood. This, however, I must relegate to such time as I may be able to get opportunity for direct observation. Meantime, several matters have suggested themselves *en route*. The first of these is that the problem immediately before us is how to get factories and workshops properly ventilated. The second is that the curse of intemperance, which hangs over some of our industries, is one requiring the most earnest attention. In some occupations it appears to be especially connected with intermission of trade, as in the hatting manufacture. In this connection, it may be pointed out that all the more precarious classes of male labour are especially liable to it.

It is, however, also fostered in a high degree by all those kinds of labour which involve exposure to great heat, such as founding and conversion of metals, glass making, calendering, and so forth. It is, indeed, no necessary sequel of such work, since beer may be, and often is, replaced by non-alcoholic beverages. With few exceptions, again, it would seem possible to devise means by which the injurious processes in different occupations may be rendered harmless, as *e.g.*, polishing of glass, steam in dyeworks, stagnation of the air in cotton mills. Constant

and more or less successful efforts are being directed, especially by the officials of the Home Office, towards the removal of injurious conditions, and the progress of reform is steady, though in some directions it may seem slow.

We are encouraged, however, not merely by the work which is now being done, but still more by the history of factory legislation during the last sixty years, to believe that we shall advance cautiously but surely towards a better order of things. When we look back to the beginning of the century, and consider the terrible hours worked in the mills, and remember that at that period not only did children of eight years and upwards work for 14 or 15 hours in the unwholesome factory atmosphere, but that even younger children and women were employed in the coalpits, we perceive at once that between then and now a great gulf is fixed. Long and arduous was the struggle before the present footing was won, and the result was a complete surprise to the manufacturers. The curtailment of child labour resulted not only in the production of labour-saving appliances, which rendered the transition easy, but the work done by the operatives in a given period was considerably increased.

In any case, it is of vital moment to the nation that the children should be well educated and healthy, and it might even be a question whether it would be economy to give children of the age of 11 two or three months' holiday before entering upon an industrial occupation.

A few extracts from Ernst von Plener's work will be useful in marking the stages of protected labour.

"In 1819 an Act was passed for cotton mills, limiting the age at which children could be admitted into factories to 9 years, and restricting to 12 each day the hours of labour for children from 9 to 15 years of age—exclusive of mealtimes.

"By 1 & 2 Will. IV., c. 39 night work was prohibited in the cotton industry to all persons between 9 and 21 years of age,

and the hours of labour were fixed for persons under 18 at 12 hours on other days, and 9 on Saturday.

"Despite the law, most factories worked 13 hours."

Lord Althorp's Act (1833) prohibited night work to all persons under eighteen employed in cotton, wool, worsted, hemp, flax, tow, and linen spinneries and weaving mills, and for the first time made a distinction between children from 9 to 13, and so-called "young persons" from 13 to 18, fixing the maximum number of hours at 48 per week, or nine hours per day for the former, and at 69 per week, or twelve per day for the latter.

Daily attendance at school for at least two hours, as well as two entire and eight half holidays in the year, were likewise provided for. The age to be determined by a physician or surgeon.

The Children Employment Commission published two reports, one on the employment of children and women in mines, and a second in 1843 on the young workers in those branches of industry not under the operation of the Factory Act, and both reports revealed the most frightful abuses.

The age of admission in mines varied from four to seven years. The working time was usually from eleven to twelve hours, extending frequently to sixteen hours. Immorality and ignorance prevailed to a frightful extent. The Mining Act 1842, prohibited underground work by women, and by boys under 10 years of age.

The abuses of the other "free" industries, however, remained unremedied till 1864, when the first Factory Extension Act was passed.

The Factory Act, 1844, reduced the working time for children of 8 to 13 years of age, employed in the textile industry, to 6½ hours per day. Adult females were placed under the same legal protection as young persons; 1½ hours for meal time were rendered compulsory. All protected persons were not to be permitted, on any pretext, to work after 4-30 p.m. on Saturdays. Parents had to send each child to school for at least

three hours daily during the first five days of the week. Children working ten hours on alternate days were to attend school five hours on each non-working day. The factory inspector might require a copy of the register of birth to determine the age of an operative, and the certifying surgeon had to report to the inspector all accidents. Parents were liable to a fine for consenting to the illegal work of their children, as well as for neglect in sending them to school.

In 1845 was passed the Print Works Act, which prohibited night work by women and young children. In other respects the Act was very defective.

In 1847 a bill, brought in by Mr. J. Fielden, became law. This important Act limited the time of labour for all young persons and women to 11 hours a day, or 63 hours weekly, at once; and from May 1st, 1848, to 10 hours a day, or 58 hours a week. Under this law it was found possible to work relays of protected persons between 5.30 a.m. and 8.30 p.m., and in order, therefore, to give the protected persons the benefit of the Act, the Enactment of August 5th, 1850, reduced the legal working day for all young persons and women to the time comprised between 6 a.m. and 6 p.m., and fixed the legal hour and a half for meal time within these twelve hours. The real working time was thus raised to $10\frac{1}{2}$ hours per day. On Saturdays no protected person was allowed to work after 2 p.m.

The next curtailment of the working time applied to the bleaching and dye works, where, says Herr von Plener, long hours of labour in hot rooms from 86 deg. Fah. to 112 deg. Fah. required particular regulation. The Bleachworks Act of 1860 was, however, a very imperfect piece of legislation.

An important Act was passed in 1860 dealing with measures for the safety, sufficient ventilation, and timbering of coal and iron mines.

The next important event was the appointment, at the instance of Lord Shaftesbury, of a Royal Commission for inquiring into the condition of the young labourers in those

branches of industry not as yet under the control of the factory legislation. The labours of this Commission, which extended from 1862 to 1866, were published in five Blue Books, which dealt exhaustively with the whole subject. Their recommendations were embodied in the Act of 1864, which subjected all manufactories of earthenware, percussion caps, lucifer matches, and cartridges, paper staining and fustian cutting, to the general factory legislation, with certain relaxing provisions. They also dealt with chimney sweepers.

The next outcome of this Commission was the Factory Extension Act, of 1867, which applied to all furnaces, iron and copper works, machine manufactories worked by machinery, metal and gutta percha factories, paper mills, glass works, tobacco manufactories, printing offices, and bookbinders' shops.

Boys under 12 years of age and females are not to be employed in glass works, likewise no children under 11 in metal grinding; in the latter trade, ventilating fans for carrying away the dust are to be introduced, under the direction of the factory inspectors.

Following this came the Workshops' Regulation Act, 1867, which endeavoured to extend to young people the statutory protection against overwork. In 1870 the principal provisions of the Factory Act of 1867 were extended to print, bleach, and dye works.

From this *résumé* it will be seen that the efforts of the legislature were chiefly directed to the protection of the children, young persons, and women, but the measures framed for that purpose necessarily entailed a like amelioration in the lot of male operatives, who were dependent on the protected persons for assistance.

In 1875 a Royal Commission was appointed to consider the scattered Acts, and to evoke from the existing chaos coherent lines of legislation.

Their report, made in 1876, resulted in the Factory and Workshops Act of 1878, which is still regarded as the principal

Act, and marks an enormous advance. It has since been supplemented by the Acts of 1883, 1889, 1891, and 1895, and the last Act, in particular, is so far-reaching in its provisions, that a reconsolidation will be necessary at no distant time.

These Acts, says Redgrave in his preface, deal with five classes of works, textile factories, non-textile factories, workshops, workshops in which neither children nor young persons are employed, domestic workshops.

A factory is defined to be a place in which machinery is moved by the aid of steam, water, or other mechanical power, although some workshops are artificially included under the term.

In non-textile factories the limits of the hours of work have been somewhat relaxed, but the great principles of sanitary conditions and the education of the young are as rigidly required as in textile factories. In workshops the chief difference is that registers and certificates of fitness are not compulsory.

In workshops in which none but women over 18 are employed more elasticity of arrangement of the hours of work and meals is permitted.

In domestic workshops the chief difference is that the employment of women is unrestricted.

It should be observed that the limit of admission of a child into a factory was fixed by the Act of 1878 at ten years of age, and that the limit of eleven years was not reached till 1891.

The protective legislation in respect of children has had very different effects in the textile and in the non-textile industries. In the latter it has for the most part resulted in the dismissal of the children altogether, while in the textile industries it has led to the firm establishment of the half-timer system. It is, indeed, evident that the trouble imposed on the manufacturer in respect of school attendance would lead to this result if children could easily be dispensed with, and it would seem therefore that their services are more urgently called for in the textile than in other

factories. Nevertheless, the manager of a weaving shed which I visited lately informed me that they do not employ any half-timers, as "they are more trouble than they are worth."

Further, our protective factory legislation has had two effects on our statistics: it has greatly reduced the mortality at early ages, and it has probably considerably reduced the birth-rate. There is, however, nothing so valuable to a population as health and life, especially when these are coupled with an improved moral tone, and the result has certainly been an increase in material prosperity.

We must now consider what is the present amount of legal protection accorded to our workers by the Factory Acts. This must be done in the most general terms only.

The Act of 1878 makes provision for the sanitary condition of factories and workshops, including ventilation. So far as factories are concerned, this duty is thrown upon the factory inspector, except as regards conveniences. The sanitary condition of workshops is under the care of the Sanitary Authority.

Sections 5 to 9 deal with the fencing off of machinery, and of dangerous vats, pans, etc., also with the removal of faulty grindstones on notice from the inspector, and with cleaning machinery in motion.

Sections 10 to 21 deal with the hours of employment and meal times of protected persons. Section 22 with the provision of holidays.

Sections 23 to 26 regulate the education of children, but permit a child of 13, certificated by an authorised person for proficiency or attendance, to be deemed a young person. From and after September 1, 1895, the standard of proficiency is standard V.

Section 27. The occupier of a factory must obtain a certificate of fitness from the certifying surgeon in respect of any person under 16 years of age employed in the factory, within 7, or, in certain cases, 13 days.

Section 28. Occupiers of workshops may require such certificate from the certifying surgeon.

Section 29. An inspector, if he considers a person under 16 unfit for the work, may require such person to be removed, unless the certifying surgeon shall subsequently certify that the child or young person is not incapacitated.

Sections 31 and 32 deal with the reporting and investigation of accidents.

Sections 33 to 37 are health provisions, and deal with the whitewashing and cleansing of factories and workshops and bakehouses.

Section 36 gives power to an inspector to direct the use of a fan or other means to remove dust from grinding, glazing, or polishing on a wheel—an important and useful provision.

Section 39 prohibits remaining in certain parts of a factory during meal times.

Section 41. A Secretary of State may extend Section 27 to a workshop.

Sections 42 to 66 are relaxing provisions.

Section 67 provides for the appointment and payment of factory inspectors, clerks, etc.

Section 68 defines the powers of the factory inspector, which are very extensive, and include conducting cases in court, and entering a school attended by a half-timer.

Section 73. A certificate of fitness for employment may not be granted without personal examination by the certifying surgeon.

Section 75 requires notice of entry on a factory to be given within one month to the factory inspector.

Section 77 requires the occupier of every factory and workshop to keep in the prescribed form prescribed particulars and registers of the children and young persons employed, etc.

Section 78 requires keeping affixed at the entrance of a factory or workshop, and in such other parts as the inspector directs (1) the prescribed abstract of the Act, (2) notice of the names and address of the prescribed inspectors, (3) a notice of the name and address of the certifying surgeon for the district, (4) a notice of the clock by which the times of the factory are regulated, (5) all requisite notices and documents.

Sections 81 to 90 deal with fines and penalties.

The Factory and Workshop Act, 1883.

Sections 2 to 12 deal with white lead factories. These must be certified to be in conformity with this Act. Special rules must be established, approved by the Secretary of State, and posted in legible characters in conspicuous places in the factory.

Sections 15 and 16 regulate the condition of newly-let bakehouses. This section, by the Act of 1895, is extended to all bakehouses, and the same Act forbids any underground place being newly used as a bakehouse.

Section 17 places the sanitary administration of retail bakehouses on the Sanitary Authority.

The Factory and Workshop Act of 1890 contains some important new provisions.

Sections 1 to 4 are occupied with rendering efficient previous legislation relating to cleanliness in workshops.

Section 7 places on Sanitary Authorities the duty of seeing that adequate provision is made for fire-escapes in factories.

Section 8 gives power to the chief inspector, on a certificate from a Secretary of State, to serve on the occupier of a factory a notice in writing, either proposing special rules or requiring the adoption of such special measures as appear to the chief inspector to be reasonably practicable. The power is a wide one, and on the certificate of the Secretary of State that the occupation is dangerous, special rules have been framed for a number of trades.

Two of these are of especial application to Manchester, viz., rules for noddling goods dyed with yellow chromate of lead, and the process of vulcanising indiarubber by means of bisulphide of carbon, and I would here express my sense of the judgment and knowledge displayed by Mr. Rogers in dealing with these industries.

Sections 9 to 12 refer to the posting and enforcement of such rules.

Section 17 enacts that an occupier of a factory or workshop shall not knowingly allow a woman to be employed therein within four weeks after she has given birth to a child.

Section 20 defines the mode of proving age.

Factory and Workshop Act, 1895.

The following summary of the new provisions is given in Redgrave's book:—

1. Overcrowding is defined by a minimum of 250 feet, and 400 feet during overtime.

2. Power is given to courts of summary jurisdiction to close dangerous factories and workshops, the word dangerous including danger to health.* .

3. A similar power is given in the case of dangerous machines, and power is given to deal with the giving out of work to be done in dangerous or unhealthy places.

4. A penalty is fixed for allowing wearing apparel to be made in a place where there is infectious disease.

5. The provisions for the fencing of machinery are extended, and further restrictions are placed upon the cleaning of machinery in motion.

6. Regulations are made as to the position of self-acting machines.

* Generally speaking, Section 2 of this Act requires proceedings to be initiated by the Sanitary Authority; failing such procedure the Factory Inspector must take action.

7. New and extended provisions are made for escape in case of fire.

8. Workmen, on application, to be represented on arbitrations.

9. Section 82, making an occupier liable to a fine of £100 in case of any person being killed or injured from neglect to fence machinery or any vat, etc., is extended to cases of injury from general neglect of provisions, rules, etc., and further restrictions are placed on overtime employment and the employment of persons both inside and outside of factories or workshops on the same day, and registers of children and young persons are made compulsory in certain workshops.

10. New provisions are made as to notice, register, investigation, etc., of accidents.

11. Laundries are brought within certain provisions of the Acts.

12. Docks, wharves, quays, warehouses, etc., and buildings in course of construction with the aid of power are brought within certain provisions of the Acts; also buildings more than 30 feet high, which are being constructed or repaired by means of scaffolding or on which more than 20 persons are employed, not as domestic servants, for wages.

13. New provisions are made with respect to tenement factories.

14. The provisions in reference to bakehouses have been mentioned.

15. A medical practitioner attending a patient whom he believes to be suffering from lead, phosphorus poisoning, arsenical poisoning or anthrax, contracted in any factory or workshop, to report the same to the Chief Inspector of Factories at the Home Office, London. Lavatory conveniences to be supplied where poisonous substances are used. The Cotton Cloth Factories Act, 1889, to apply to every textile factory in which

humidity is artificially produced. The arrangements for ventilation to be removed from the control of the workpeople.

16. Regulations are made as to sanitary conveniences.

17. Extended regulations as to furnishing particulars of wages, and as to divulging trade secrets.

18. List of out-workers to be sent to inspectors twice yearly. List of in-workers, etc., to be sent once a year.

The Cotton Cloth Factories Act, 1889, provides machinery by which the humidity of the atmosphere in "steaming" weaving sheds may be recorded, and by which the maximum allowable limit of humidity may be checked by the operatives.

The Cotton Cloth Factories Act, 1897, simply empowers the Secretary of State to order regulations in accordance with the recommendations of the Commission appointed to inquire into the working of the above Act. The order issued accordingly, dated February 2, 1898, however, introduces a new and far-reaching principle contained in the following section:—

"The arrangements for ventilation shall be such that during working hours in no part of the cotton cloth factory shall the proportion of carbonic acid in the air be greater than nine volumes of carbonic acid to every ten thousand volumes of air."

This much-needed law is just as applicable to other factories as to steaming weaving sheds, and in the great majority is far more needful. It is equally applicable to schools, except that in these the expense of compliance will be greater. But it is high time that a resolute effort was made to prevent the gradual process of hæmic degeneration which exists in the crowded home, the crowded school, and the ill-ventilated factory.

To the Truck Acts, which are intended to secure to the workman the full value of his labour, I need only allude here, valuable as they are.

I have endeavoured to sketch out the law in such a manner

as to show that there is a great body of protective legislation, and I may add an able executive to carry it into effect, while constant additions and amendments are being added.

What, now, are the difficulties in the way of improvement?

In the first place the labourers are few; the official element is small in comparison with the work to be overtaken, although in this district we cannot complain either of want of ability or of want of energy. It is to be feared that the administration of the law in regard to workshops, which is in the hands of sanitary authorities, is less vigorous generally than the administration of the law in regard to factories. However, considerable activity has been shown by the Manchester Sanitary Authority in respect of fire escapes and sanitary conveniences in factories and workshops, as well as in regard of bakehouses.

In the second place, considerable resistance is often experienced on the part of the workpeople in carrying out necessary regulations. It must always be open to doubt, however, in such a case whether the regulations are the best possible. The factory inspector for this district, Mr. Rogers, has made great progress in the introduction of extraction fans in connection with dusty occupations.

In the third place, the organisation of labour moves forward steadily if slowly, and great improvement may be expected in this direction.

The recent power given to the Chief Inspector to devise rules for dangerous occupations may be expected to produce very considerable results.

In the fourth place, the subject of ventilation, which is of supreme importance, has been little entered upon.

Fifthly, we are by no means at the end of the question of child labour, and further ameliorations of the lot of children may be confidently looked for.

Whether it will ever be possible to establish an eight hours

day may be doubted. If, however, it should be possible, I for one do not doubt that it will prove an enormous impulse to original work and to higher developments.

This question links itself indissolubly with that of temperance, and with the cause of education.

Should it be found possible to establish in England and abroad a general eight hours day, to emancipate children from labour, to check the terrible abuse of alcohol which prevails, to advance the cause of education by good teachers and good schools, to improve the home surroundings, who can doubt that a new and better generation will arise to call us blessed, even as we look back with gratitude to the labours of a century of Statesmen in the cause of labour.

In preparing this paper, I am indebted for considerable assistance to Mr. R. M. Rowe, Mr. E. Dunks, and H.M.I.F. Mr. Rogers, and Mr. Lawrence Smith.

The Economic Results of the Ship Canal on Manchester and the Surrounding District.—II.

Contributed by A. Woodroofe Fletcher, LL.B.,
Barrister-at-Law.

In February, 1897, a paper was read to the members of the Manchester Statistical Society on "The Economic Results of the Ship Canal on Manchester and the Surrounding District." In that paper a very favourable view of the influence of the canal on the trade of the city and district was expressed, the annual saving to the community being estimated roughly at not less than half a million sterling; and several influential gentlemen who were present gave it as their opinion that the saving might safely be put at a much higher figure. It will be interesting to continue up to the present time the investigations which were then made, and to see if the later figures now available tend to show that the increased prosperity then apparent has been maintained.

Occupation of Dwelling Houses.

Turning first to the number of inhabited houses, the follow-

ing table shows the rapid increase in the number of new dwelling-houses certified for habitation within the city area during the last three and a half years:—

New dwelling-houses certified for habitation in city of Manchester—

From 1st November,	1895,	to 31st October,	1896.	1,088
,, ,,	1896,	,, ,,	1897,	1,965
,, ,,	1897,	,, ,,	1898,	2,208
,, ,,	1898,	to 30th May,	1899,	2,773
			Total.....	8,034

There are also about 1,600 houses in course of erection at the present time within the city. Within the Manchester Town Postal delivery area, which comprises the whole of the Moss Side district and the municipal areas of the city of Manchester and the borough of Salford, the number of houses that have been built since July, 1896, or are now in course of erection, is 13,233.

Rateable Value of Property.

The net annual rateable value of the old city area, excluding the townships added in 1886 and 1891, shows a slight increase in the two years from 1896 to 1898, as appears from the following figures:—

Year.	Annual value.	Increase on Previous Year.		Decrease on Previous Year.	
		Amount.	Rate per cent.	Amount.	Rate per cent.
	£	£		£	
1896	2,359,743	...	...	...	...
1897	2,340,183	...	...	19,560	·82
1898	2,366,495	26,312	1·14	...	...

No great increase within the old city area can, of course, be expected, as the whole of the area is practically built up, and increase in the rateable value can only occur where old buildings are pulled down and new ones of greater value erected in their place. In order to obtain an accurate idea of the real growth of the city, it is necessary to look at the figures for the whole city since the last enlargement of its boundaries in 1891. A table of these figures is accordingly here given:—

Year.	Annual Value.	Increase on Previous Year.	
		Amount.	Rate %
	£	£	
1891	2,798,005	...	...
1892	2,844,086	46,081	1·64
1893	2,857,005	12,919	·45
1894	2,875,289	18,284	·63
1895	2,902,351	27,062	·94
1896	2,943,545	41,194	1·41
1897	2,955,775	12,230	·41
1898	3,019,152	63,377	2·14
1899	3,109,690	90,538	2·99

The increase in the net annual rateable value of the borough of Salford since 1896 is as follows:—

Year.	Annual Value.	Increase on Previous Year.	
		Amount.	Rate %.
	£	£	
1896	835,455	...	...
1897	854,193	18,738	2·24
1898	888,693	34,500	4·03

In the surrounding districts, where there is a large area of land still unbuilt upon, the increase in the net annual values is still more marked. This will appear from the following table:—

TOWNSHIPS.	1881.	1896.	1898.
	£	£	£
Stretford	101,014	143,956	154,545
Swinton and Pendlebury	67,721	92,301	96,198
Levenshulme	15,169	34,474	37,008
Moss Side	92,855	113,447	119,397
Withington	116,841	187,863	196,631
Failsworth	30,132	44,102	49,617
Prestwich	39,519	55,809	58,509
Audenshaw	23,734	34,124	36,618
Denton	27,120	53,550	55,000
Droylsden	22,600	30,577	35,686

General Prosperity.—Corporation Undertakings.

Waterworks.

The increase in the general prosperity of the district which these figures indicate is borne out by the revenues from the various departments of the Manchester Corporation. It is true that the revenue of the Waterworks Undertaking showed a very slight decrease in 1897, the receipts being £280,198, as

against £280,826 in the preceding year; but this was due to a reduction in the charges for water. In the next year, 1898, the revenue rose to £294,082, an increase of £13,884, or 4·95 per cent; and in the present year it has reached £312,041, an increase on 1898 of £17,959, or 6·10 per cent. This is considered so satisfactory that the Council have decided, on the recommendation of the Waterworks Committee, that the public water rate be reduced 2d. in the pound, that the charges for water for domestic purposes be reduced 1d. in the pound, and that 5 per cent discount be allowed off all accounts for supplies of water by meter amounting to 10s. per quarter and upwards, on condition that such accounts are paid within a specified period.

Gas and Electricity.

The Gas Undertaking continues to show a satisfactory increase both in the output and in the revenue, and the revenue of the electricity undertaking has risen, in the six years since it was inaugurated, to over £70,000. Tables giving the figures for these important departments of the Corporation are given in Appendices A and B.

Post Office Work.

The expansion of post-office work in Manchester during the last few years is very remarkable. Since July, 1896, the increase per week of the indoor work at Manchester, as expressed in letters—that is, letters and parcels, posted, sent forward *viâ* Manchester, and received—amounts to nearly 23 per cent; and the increase during the same period in outdoor work, that is, correspondence delivered by van or postman—is nearly 16 per cent.

Ship Canal Traffic.

The steady increase in the use that is being made of the Ship Canal itself sufficiently appears from the following table,

showing the amount of traffic in each year since the canal was opened:—

Year.	Sea-going Traffic in Tons.	Barge Traffic in Tons.	Total Traffic in Tons.	Increase.		Revenue—Increase.		
				Tons.	Per Cent.	£	£	Per Cent.
1894	686,158	239,501	925,659	..	..	97,901	..	..
1895	1,087,443	271,432	1,358,875	433,216	46·80	137,474	39,573	40·42
1896	1,509,658	316,579	1,826,237	467,362	34·39	182,330	44,856	32·62
1897	1,700 479	365,336	2,065,815	239,578	13·11	204,664	22,334	12·24
1898	2,218,005	377,580	2,595,585	529,770	25·64	236,225	31,561	15·42
1899 to Ju'e	1,116.775	209,046	1,325,821	..	..	124,183	..	..

Development of Trade.

In order to illustrate the development of trade and the creation of new industries resulting from the construction of the Ship Canal, I here give a list of some of the new works, wharves, etc., on the canal banks:—

Name of Firm.	Works, etc.	Locality.
Diamond Oil Company	Oil Stores.....	Ellesmere Port
Smelting Corporation, Limited	Works	Ellesmere Port
M. S. C. Pontoons and Dry Docks Co., Limited	Pontoon	Ellesmere Port
United Alkali Company	Extension of Works ...	Runcorn
Mathews District White Lead Co. ...	Works	Runcorn
Richard Evans and Co., Limited.....	Lay Bye and Coaling Station, &c....	Acton Grange
Creosoting and Sleeper Co., Limited.	Works	Warrington
Cecil Kidson and Co.....	Glue Works.....	Lymm
M. S. C. Brick and Tile Co.	Works	Statham
Co-operative Wholesale Society, Ltd.	Soap and Candle Works	Irlam
Anglo-Caucasian Oil Co.	Oil Tanks.....	Eccles
J. Roscoe, Limited.....	Moulding Sand Mills ...	Weaste
J. E. C. Lord	Pitch and Tar Works...	Weaste
Colonial Consignment and Distributing Co., Limited.....	Cold Air Stores	Pendleton and Barton

Name of Firm.	Works, etc.	Locality.
Liverpool Storage Co., Limited	Oil Tanks.....	Mode Wheel
Bagnall Oil Co., Limited	Oil Tanks.....	Mode Wheel
Manchester Corporation	Lairages, etc.	Mode Wheel
Manchester Corporation	Oil Tanks.....	Mode Wheel
M. S. C. Pontoons and Dry Docks Co., Limited	Pontoon and Dry Dock	Mode Wheel
Manchester and Salford Grain Elevator Co.....	Portable Elevators	Salford Docks
A. Knowles and Sons, Limited	Coaling Crane.....	Salford Quay
Buxton Lime Firms Co.....	Depôt	Trafford Wharf
China Clay Co.	China Clay Stores	Trafford Wharf
Winser and Co.	China Clay Stores	Trafford Wharf
S. W. Royce and Co.....	Mineral Merchants.....	Trafford Wharf
Manchester and Liverpool Transport Co.	Carriers	Trafford Wharf
James G. Tuxford.....	Slate Depôt..... ..	Trafford Wharf.

The following firms have opened offices at the Docks as timber importers, viz. :—

Harrison, Robinson, and Co..... ...	Liverpool.
Crossfield and Co.....	Barrow-in-Furness.
Lumley, Lloyd, and Co.....	Liverpool.
H. and G. Curwen and Co.	Preston.
Lightbound, Rigby, and Co.....	Liverpool.
The Manchester Timber Importers, Ltd.	Manchester.
J. Brown and Co..... ...	Manchester.

In addition to the above a large number of firms are conducting their import business *viâ* the canal from their city offices, or through the Ship Canal Company, acting as their forwarding agents.

Grain Elevator.

In connection with the development of trade and the creation of new industries a striking example is the construction of the Grain Elevator at the Manchester Docks. The building has been erected by the eminent American Elevator builders, Messrs. John S. Metcalf and Co., of Chicago, and has storage for 40,000 tons of grain. It contains 226 bins, varying in capacity from 37 to 300 tons, which are constructed of wood, but the exterior of the building is

brickwork. It stands at an average distance of 340 feet from the front of the quay, where there is a tower containing a "marine leg," which is designed to discharge a cargo of grain at the rate of 350 tons per hour.

Grain can be weighed continuously while being conveyed from the vessel to the elevator, and the weight taken both by the representatives of the vessel and of the owners of the grain. From the tower the grain is carried by the conveyor into the elevator building, lifted to the top of the central tower, and from thence distributed into the various bins.

The appliances for the delivery of the grain are upon an extensive scale, and of the most complete character. Grain can be sacked, weighed, and loaded into 40 railway wagons and 10 carts (50 loading berths in all) simultaneously, all under cover.

There is also a conveyor for loading barges and coasters, either with grain in bulk or in bags, at the rate per hour of 150 tons if loose, or 250 sacks if bagged.

The following operations can all be performed simultaneously:—

(*a*) Discharging from vessels in the dock at the rate of 350 tons per hour.

(*b*) Weighing in the tower at the water's edge.

(*c*) Conveying to the house and distributing into any of the 226 bins.

(*d*) Moving grain about within the house for changing bins or delivery, and weighing in bulk at the rate of 500 tons per hour.

(*e*) Sacking grain, weighing, and loading sacks into 40 railway wagons and 10 carts simultaneously.

(*f*) Conveying from the elevator into barges or coasters at the rate of 150 tons per hour if in bulk, or 250 sacks per hour if bagged.

An important feature in the house is Metcalf's Patent Dryer, used in America with most satisfactory results. The dryer is capable of drying 50 tons of grain at each operation, and grain can be moved to or from the dryer from or to any bin in the house. Should grain unfortunately arrive in a heated state the dryer will quickly put it into marketable condition.

Trafford Park Estates.

One of the most remarkable of the results attending the construction of the Ship Canal has been the purchase by a Syndicate, from Sir Humphrey de Trafford's Trustees, of the Trafford Park Estates. The name of the Syndicate is the Trafford Park Estates Limited, and its managing director is Mr. Marshall Stevens, the late manager of the Ship Canal.

The estate consists of 1,183 acres; it adjoins the Manchester Docks, and has a frontage to the Ship Canal of about three miles.

The estate is rapidly being disposed of to manufacturers and others, and railway arrangements are in course of settlement with the Ship Canal Company for the conveyance of through traffic over the Canal Company's system. The development of such an estate cannot fail to be of valuable benefit to Manchester and the surrounding districts, as well as to the Ship Canal Company.

Sites have been sold by the Trafford Park Estates Company to the following firms, and in most cases works and other buildings, etc., have already been erected or are in course of erection, viz.:—

† Morrison and Ingram	Sanitary Engineers
* Manchester Patent Fuel Works, Limited	
* James Nuttall	Contractor
* Manchester Timber Importers, Limited	Timber yard
* J. W. Southern	Timber and saw mills
* Trafford Brick Company, Limited	
‡ Manchester and Liverpool Transport Co., Ltd.	Carriers
† J. D. Sanders	Maltster

* Morrell and Mills	Shipwrights
† W. T. Glover and Company, Limited	Electrical Engineers
‡ W. H. Bailey and Company, Limited	Engineers
‡ Bagnall and Company, Limited	Oil Importers
† N. Kilvert and Sons, Limited	Lard Refiners
† Liverpool Warehousing Company, Limited	Warehouse
† Lancashire Dynamo and Motor Co., Limited	Dynamo Manufacturers
‡ Illingworth, Ingham and Company	Timber Merchants
‡ John Hall (Hall and Pickles)	Ironworks
‡ R. Baxendell and Son	Corn Millers
† British Westinghouse Electric and Manufacturing Company, Limited	Electric, &c., Engineers
† Trafford Electric Supply Company, Limited	Electric, &c., Engineers
‡ J. B. Lloyd (Higgin, Lloyd and Company)	Drysalters
* Trafford Park Tram and Railway	
† Manchester and County Bank	
† Manchester and Liverpool District Bank	
† Traffic Parks Dwellings, Limited	

NOTE.—* Denotes works completed. † Denotes works in course of erection.
‡ Denotes intended works not yet commenced.

The establishment of the foregoing works has resulted in cottages having to be provided for housing the working population; 1,500 cottages are being erected on the estate to meet this want, and arrangements have been made to materially increase this number as further industrial works develop.

The above, of course, form only a small proportion of the firms who are actually using the canal for trade purposes. Moreover, in addition to the merchants, manufacturers, and others who have erected new works, etc., as already mentioned, there has sprung up a large number of ship brokers, ship owners, forwarding agents and carriers (both road and barge); and although some of them had offices in Manchester before the canal was opened, the majority have set up offices as a direct result of the construction of the canal. Much more information might be given under this head, but enough has been stated to show that the development of trade has been very real and very extensive.

Traffic Rates.

The saving to traders by importing *viâ* the Ship Canal direct to Manchester is not confined to Manchester and the immediately surrounding area. The following table gives the present comparative, inclusive, rates for timber (logs), flour, and grain and wheat from on board a ship in the Manchester and Liverpool Docks respectively to a group of towns by railway.

Inclusive Through Rates from Ship to	Timber (Logs).			Flour.			Grain and Wheat.		
	Through rates from Manchester.	Cost *via* Liverpool.	Saving *via* Manchester.	Through rates from Manchester.	Cost *via* Liverpool.	Saving *via* Manchester.	Through rates from Manchester.	Cost *via* Liverpool.	Saving *via* Manchester.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Accrington	7 6	11 9	4 3	7 2	11 8	4 6	7 2	10 5	3 3
Ashton-under-Lyne	6 8	11 8	5 0	6 8	11 7	4 11	6 8	10 4	3 8
Bacup	7 9	12 7	4 10	7 4	11 10	4 6	7 4	10 7	3 3
Blackburn	7 6	10 10	3 4	7 2	11 8	4 6	7 2	10 5	3 3
Bolton	6 6	10 4	3 10	6 4	10 9	4 5	6 4	9 6	3 2
Bradford	8 9	13 10	5 1	8 10	13 10	5 0	8 10	12 7	3 9
Burnley	8 4	12 7	4 3	8 6	12 7	4 1	8 6	11 4	2 10
Glossop	7 6	12 10	5 4	7 1	12 2	5 1	7 1	10 11	3 10
Halifax	8 9	13 0	4 3	8 8	13 0	4 4	8 8	11 9	3 1
Huddersfield	8 4	14 2	5 10	8 6	12 7	4 1	8 6	11 4	2 10
Middleton	7 0	12 2	5 2	6 8	12 6	5 10	6 8	11 3	4 7
Oldham	7 0	12 2	5 2	6 8	12 2	5 6	6 8	10 11	4 3
Rochdale	7 4	12 0	4 8	7 0	12 1	5 1	7 0	10 10	3 10
Stockport	6 0	11 2	5 2	6 0	10 9	4 9	6 0	9 6	3 6
Todmorden	8 0	13 0	5 0	7 4	12 10	5 6	7 4	11 7	4 3

Clearing House Returns.

The amount which passed through the Manchester Clearing House in 1897 was £193,015,379. This was a decrease of

£558,162, or ·28 per cent, on the previous year; but this small decrease was much more than made up by an increase of £10,956,554, or 5·67 per cent in 1898, when the amount passing through the Clearing House was £203,971,933, the largest amount on record by more than £10,000,000. It may be added that the returns for the present year, up to the time of writing, indicate that this rate of increase is likely to be maintained.

Railway Traffic.

It is difficult to estimate the effect of the Ship Canal on the great railway companies, especially since the returns for the Manchester district alone are not available. The table given in Appendix C, however, showing the total receipts from all sources of the five great companies having termini in Manchester is instructive. It will be seen that in 1893, the year before the canal was opened, each of the companies had to record a decrease in revenue—in some cases a very heavy decrease. But in each of the five years during which the canal has been open all of the companies (with the single exception of the Great Central in 1895) have substantially increased their receipts. It does not seem unreasonable to assume that at least a portion of these increased receipts is due to the beneficial effect of the Ship Canal on the trade of Manchester and Salford and the surrounding district.

APPENDIX A.

MANCHESTER CORPORATION GAS UNDERTAKING.

Year ending Mar. 31.	Gas issued from Works in cubic feet.	Increase on Previous Year.		Decrease on Previous Year.		Price of Gas per 1000 feet.	Total Revenue.	Increase.		Decrease.	
		Quantity.	Rate per cent.	Quantity.	Rate per cent.			Amount.	Rate per cent.	Amount.	Rate per cent.
						s. d.	£	£		£	
1893	3,634,690,000	...	...	...	...	2 6	541,526	...	...	...	
*1894	3,532,035,000	...	...	102,655,000	2·82	2 6	556,027	14,501	2·68	...	
1895	3,683,067,000	151,032,000	4·28	...	...	2 6	566,981	10,954	1·97	...	
†1896	3,762,570,000	79,503,000	2·16	...	...	2 3	510,701	...	...	56,280	9·92
1897	4,182,339,000	419,769,000	11·16	...	. .	2 3	552,816	42,115	8·25	...	
1898	4,153,520,000	...	...	28,819,000	0·69	2 3	553,642	826	·15	...	
1899	4,457,073,000	303,553,000	7·31	...	...	2 3	594,970	41,328	7·46	...	

* Sixteen weeks coal strike.

† Price of gas reduced 3d. per 1000, and Meter Rents abolished within City. Great reduction in receipts from Ammonia Water.

APPENDIX B.

MANCHESTER CORPORATION ELECTRICITY UNDERTAKING.

Year ending March 31.	Current sold, Units.	Increase on Previous Year.		Price Charged.	Total Revenue.	Increase on Previous Year.	
		Quantity Units.	Rate %			Amount.	Rate %
					£	£	
1894 (8 m'ths.)	439,379	...	...	8d. per unit, *or* 2d. per unit, and £3 per quarter per unit of demand.	10,199	...	...
1895	1,168,382	509,314	77·27	Ditto ditto ditto	28,640	13,342	87·21
1896	1,748,244	579,862	49·63	6d. per unit, *or* 2d. per unit and £3 per quarter per unit of demand.	38,252	9,612	33·56
1897	2,508,588	760,344	43·49	Ditto to September, 6d. per unit, *or* 1½d. per unit, and £2 5s. per quarter per unit of demand from October to March.	51,484	13,232	34·59
1898	3,434,850	926,262	36·92	Ditto to September, 5d. per unit, *or* 1½d. per unit, and £1 15s. per quarter per unit of demand, from Oct. to March.	57,409	5,925	11·50
1899	4,773,247	1,338,397	38·96	5d. per unit. or 1½d. per unit, and £1 15s. per quarter per unit of demand.	71·941	14,532	25·31

APPENDIX C.

RAILWAY COMPANIES.

Year.	London and North Western.			Midland.			Great Northern.			Lancashire and Yorkshire.			Great Central (late M. S. & L.)		
	Total Receipts from all sources.	Increase per cent.	Decrease per cent.	Total Receipts from all sources.	Increase per cent.	Decrease per cent.	Total Receipts from all sources.	Increase per cent.	Decrease per cent.	Total Receipts from all sources.	Increase per cent.	Decrease per cent.	Total Receipts from all sources.	Increase per cent.	Decrease per cent.
	£			£			£			£			£		
1890	11,591,354	...	...	8,726,673	...	...	4,060,396	...	...	4,368,467	...	...	2,256,599	...	...
1891	11,794,756	1·75	...	9,190,151	5·31	...	4,185,496	3·08	...	4,452,542	1·92	...	2,322,796	2·93	...
1892	11,737,646	...	·48	9,258,847	·74	...	4,199,733	·34	...	4,463,976	·25	...	2,408,127	3·67	...
1893	11,235,860	...	4·27	8,407,592	...	9·19	3,995,434	...	4·86	4,416,351	...	1·06	2,160,618	...	10·27
1894	11,623,072	3·44	...	9,119,579	8·46	...	4,237,974	6·07	...	4,628,647	4·80	...	2,505,256	15·95	...
1895	11,788,948	1·42	...	9,183,273	·69	...	4,308,172	1·65	...	4,713,441	1·83	...	2,469,210	...	1·43
1896	12,333,655	4·62	...	9,662,617	5·21	...	4,550,338	5·62	...	4,947,766	4·97	...	2,563,894	3·83	...
97	12,693,421	2·91	...	10,091,287	4·43	...	4,741,417	4·19	...	5,015,911	1·37	...	2,629,461	2·55	...
1898	13,140,985	3·52	...	10,615,504	5·19	...	5,411,494	14·13	...	5,156,194	2·79	...	2,684,735	2·10	...

THE

MANCHESTER STATISTICAL SOCIETY.

ESTABLISHED 1833.

REPORT OF THE COUNCIL

FOR THE SIXTY-SIXTH SESSION, 1898 99.

During this session, which commenced on the 23rd November, 1898, six ordinary meetings have been held, at which the following papers were read, viz: By—

The President (Dr. L. C. Casartelli) on "Town Beauty."

Miss Mary Dendy on "Feeble-Minded Children."

Mr. B. F. C. Costelloe (London) on "The Housing Problem."

Professor A. W. Flux, M.A., on "Some Old Trade Records Re-examined: A Study in Price Movements during the present Century."

Professor A. S. Wilkins, LL.D., on "The Organisation of Educational Effort in Manchester."

Dr. James Niven on "Some Statistics of Lancashire Industries."

The Council desire to express their indebtedness to these gentlemen and to Miss Dendy for their very valuable and interesting contributions to the Society's Transactions, and also to those corresponding members who have during the session made presentations to the Society's Library.

The attendance of members and friends at the ordinary meetings has averaged 31.

Fourteen new ordinary members have been elected during the year, the number now on the books being 203, of whom 18 are life members.

The Council record with deep regret the death in March last, of Mr. John R. Galloway, the Senior Vice-President of the Society, who always took a deep interest in its working, and who made valuable contributions to its Transactions.

A statement of receipts and expenditure for the session is annexed hereto, from which it appears that the balance in the Society's favour is now £

THE MANCHESTER STATISTICAL SOCIETY.

Dr. TREASURER'S STATEMENT OF RECEIPTS AND PAYMENTS FOR THE SESSION 1898-99 Cr.

	£ s. d.	£ s. d.		£ s. d.	£ s. d.
To Balance brought from last year, viz. :—			By Rent of Rooms		10 10 0
Salford Corporation Bond...	300 0 0		,, Annual Dinner Expenses ..	60 0 0	
Cash in hand	4 0 6		,, Less Sale of Tickets	47 12 6	
	304 0 6				12 7 6
Less due to Bankers	177 13 4		,, Teas at Ordinary Meetings		9 0 10
		126 7 2	,, Printing and Stationery : –		
,, Subscriptions :—			Transactions and Index ...	20 13 0	
Arrears	6 17 0		Circulars and Stationery...	18 15 6	
Admission Fees (14)	7 7 0				39 8 6
Annual Subscriptions, 1898-99	93 19 6		,, Books Purchased		1 18 6
			,, Postages & Petty Expenses		8 0 10
		108 3 6	,, Bank Interest		5 1 0
,, Interest on Salford Corporation Loan		9 8 6			86 10 2
,, Transactions Sold.....	3 19 1		,, Balance in favour of the Society, viz. :—		
,, Furniture Sold	1 10 0		Salford Corporation Bond...	300 0 0	
		5 9 1	Less due to Bankers	137 1 8	
					162 18 4
		£249 8 6			£249 8 6

Audited and found correct,

(Signed) T. C. MIDDLETON,
Chartered Accountant.

MANCHESTER STATISTICAL SOCIETY.

(Established 1833.)

LIST OF OFFICERS OF THE SOCIETY,

SESSION 1898-1899.

President:

Very Rev. Dr. L. C. CASARTELLI.

Vice-Presidents:

J. R. GALLOWAY (Died March 13th, 1899).
A. W. FLUX, M.A.

Treasurer:

JOHN MATHER.

Ex-officio Members of Council:

THOS. READ WILKINSON.
ELIJAH HELM.
ROBERT MONTGOMERY.
THOS. B. MOXON.
EDWIN GUTHRIE.
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W. H. S. WATTS.
GEO. H. POWNALL.

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Auditor:

T. C. MIDDLETON, J.P.

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W. H. S. WATTS.

*

MANCHESTER STATISTICAL SOCIETY.

LIST OF ORDINARY MEMBERS.

JUNE 30TH, 1899.

Elected.

1895 Abbott, T. C., Strutt Street, Manchester.
1895 Aldcroft, W. H., Refuge Assurance Co. Limited, Oxford Street, Manchester.
1895 Anderson, John, 18, Exchange Street, Manchester.
1898 Angell, John, F.P.S., Withington.
1892 Arnold, W. A., Ferncliffe, Palatine Road, Withington.
1892 Ashworth, Wm., 45, Spring Gardens, Manchester.
1871 Axon, W. E. A., 47, Derby Street, Moss Side, Manchester.

1882 Bailey, Sir Wm. Hy., Sale Hall, Sale, Cheshire.
1892 Balfour, Right Hon. Arthur J., M.P., 4, Carlton Gardens, London, S.W.
1879 Ballantyne, Major Robert, Crumpsall.
1879 Barclay, Robert, 1, Dickinson Street, Manchester.
1887 Bardsley, Samuel, Manchester and County Bank, Manchester.
1869 *Beardsall, Francis E. M., 63, Brown Street, Manchester.
1889 Behrens, Chas., Holmacres, Dunham Massey.
1875 Behrens, Gustav, 36, Princess Street, Manchester.
1884 Behrens, Henry, Wilbraham Road, Fallowfield.
1890 Behrens, Oliver P., 22, Oxford Street, Manchester.
1894 Bell, Joseph, 2, Portland Street, Manchester.
1881 Bennie, Andrew, District Bank, Spring Gardens, Manchester.
1898 Birdsall, George Bradshaw, Wendelholme, Whalley Range, Manchester.
1884 Blakely, Robert P., Church Croft, Whalley Range, Manchester.
1888 Bles, A. J. S., Palm House, Park Lane, Higher Broughton.
1882 Boardman, James, 37, Cross Street, Manchester.
1886 Booth, Arthur, Manchester and County Bank, Manchester.
1894 *Booth, Arthur H., Williams Deacon and Manchester and Salford Bank, Manchester.
1895 Bradley, Dr. F., 6, St. James's Square, Manchester.
1872 Bright, Right Hon. Jacob, 31, St. James's Place, London, S.W.
1894 Brierley, James, J.P., Fairfield House, Fairfield.
1869 Broadfield, E. J., Roseleigh, Prestwich, Manchester.
1898 Brocklehurst, Frederick, 107, Mauldeth Road, Withington.
1883 Broderick, Lonsdale, 104, King Street, Manchester.
1883 Brooks, Thomas Burnley, 104, King Street, Manchester.
†Brooks, Sir W. C., Bart., 92, King Street, Manchester.
1877 Broome, Joseph, 6, St. Peter's Square, Manchester.
1891 Brown, Wm., Salford Iron Works, Salford.

1862 Browning, Thomas, 18, Booth Street, Manchester.
1883 Bryant, Jesse, Sunnyside, Higher Broughton.
1894 Butcher, Sam. Foster, Fairlawn, Bury.

1896 Cain, John N., Stock Exchange, Manchester.
1893 Carlisle, Ernest J., M.A., 20, St. Ann's Square, Manchester.
1897 Carr, R. B., 10, Meal Street, Manchester.
1897 Carrington, J. B., Town Hall, Manchester.
1896 Cary, W. E., Harnham House, West Didsbury.
1892 Casartelli, Dr. L. C., St. Bede's College, Alexandra Park, Manchester.
1898 Chapman, S. J., 79, St. Bees Street, Moss Side.
†Christie, R. C., Ribsden, Bagshot, Surrey.
1876 Chorlton, Thomas, 32, Brazennose Street, Manchester.
1876 *Clegg, James W., Westfield, Tyldesley.
1876 *Clegg, Robert Joseph, Westfield, Tyldesley.
1876 Colley, T. C. Davies, M.A., 16, Wellington Road, Withington.
1899 Cross, E. J., 37, Bishop Street, Moss Side.

1885 Dreydel, Thomas, Haworth's Buildings, Cross Street, Manchester.
1889 Drummond, Peter, London City and Midland Bank Limited, Manchester.

1894 Eggington, Thomas, J.P., Heidelberg House, Barlow Moor Road, Didsbury.
1891 Emmott, Alfred, M.P., Woodfield, Oldham.

1861 Farrar, Thomas L., 79, Fountain Street, Manchester.
1876 Fletcher, A. J., Union Bank Limited, York Street, Manchester.
1893 Flux, A. W., M.A., 57, Parsonage Road, Withington.
1877 Fogg, William, 43a, Brown Street, Manchester.
1897 Follows, F. W., Newholme, Heaton Moor, Stockport.
1875 Fraser, W. M., National Liberal Club, Whitehall Place, S.W.
1889 Fraser, Drummond, London City and Midland Bank Limited, Manchester.

1876 Gaddum, George H., 3, South Street, Albert Square, Manchester.
1898 Garnett, J. P., 22, Booth Street, Manchester.
1877 Gartside, J. H., 52, Fountain Street, Manchester.
1894 Gibson, Robert, J.P., Old Trafford.
1888 Gillies, Andrew A., 46, Brown Street, Manchester.
1894 *Godlee, Francis, 8, Minshull Street, Manchester.
1897 Greenhow, J. H., Glebe Lands, Bowdon.
1894 Greenough, Thomas Rigby, Beechwood, Leigh.
1894 Greg, Arthur, J.P., Eagley, near Bolton.
1888 Gregory, Theodore, 32, York Street, Manchester.
1877 Guthrie, Edwin, 71, King Street, Manchester.

1894 *Hague, Thos. Schofield, Prospect House, Westwood, Oldham.
1893 Hall, J. E. R., Bank, Mosley Street, Manchester.
1898 Hall, J. L., Corn Exchange, Manchester.
1894 Hall, Jas. W., 17, Minshull Street, Manchester.
1892 Harker, Thomas, Rylands and Sons Ltd., Manchester.
1894 Harwood, John, J.P., Woodleigh, Heaton.
1898 Hattersley, R. L., Irlam Road, Flixton.
1870 Haworth, Abraham, Strutt Street, Manchester.
1881 Haworth, G. C., Ordsal Mills, Salford.

1865 Helm, Elijah, Chamber of Commerce, Manchester.
1898 Hesse, Frank R., Lindores, Barlow Moor Road, Didsbury.
1876 Hesse, Max, Binswood, Wilmslow Road, Didsbury, Manchester.
1892 Hewit, R. P., 22, Princess Street, Manchester.
1894 Hewitt, David B., J.P., Oakleigh, Northwich.
1897 Heyes, Wm., 71, Mosley Street, Manchester.
1897 Heys, Richard Theodore, Wycliffe Villa, Edgeley Road, Stockport.
1877 *Heywood, Harvey, Spring Vale, Middleton
1897 Hicks, Rev. A. S., M.A., St. Mary's, Hulme.
1888 Hicks, George, 19, Pall Mall, Manchester.
1878 Holden, Edward H., London and Midland Bank, London.
1898 Holt, Edwyn, 25, Booth Street, Manchester.
1895 Hooley, Cosmo C., Davyhulme.
1883 Horsfall, T. C., Swanscoe Park, near Macclesfield.
1892 Houldsworth, Sir W. H., Bart., M.P., Legh Cottage, Knutsford.

1879 Jackson, George Brindley, 7, Brazennose Street, Manchester.
1886 Johnson, G. J., Atlas Assurance Company, 30, Booth St., Manchester.
1897 Johnson, James, 2a, China Lane, Piccadilly, Manchester.

1869 Kemp, Francis, Williams Deacon and Manchester and Salford Bank, Manchester.
1881 Kinch, Walter S., Burtholme, Worthington, near Wigan.
1885 Kirlew, Gilbert R., 5, Upper Camp Street, Higher Broughton.
1889 Kolp, Noah, Woodthorpe, Victoria Park, Manchester.

1894 Laidlaw, Adam, 18, London Road, Manchester.
1897 Lamb, Samuel, Heaton Mersey.
1895 Lane, J. N., Heaton Lodge, Heaton Mersey.
1890 Langdon, Adolph M. L., 40, Kennedy Street, Manchester.
1890 Langdon, E. H. L., 131, Palatine Road, Didsbury.
1895 Leaf, Alfred, Pendleton.
1888 Leigh, Sir Joseph, Grangethorpe, Rusholme.
1895 Lynch, Rev. Father P., St. Wilfrid's, Hulme.

*Manchester, The Right Reverend the Lord Bishop of, Bishop's Court, Higher Broughton.
1898 McCabe, D. (J.P.), 24, Chapman Street, Hulme.
†*McConnell, William, Knockdoliare, Colmonell, Ayrshire.
†*McConnell, J. W., Prestwich, Manchester.
1894 Mandleberg, G. C., Broughton Park, Manchester.
1892 Marx, Charles, 50, Sackville Street, Manchester.
1892 Mason, S., Banff House, Rusholme.
1889 Mather, John, 8, King Street, Manchester.
1894 Mercer, Rev. J. E., M.A., The Rectory, Gorton.
1888 Merttens, F., 76, Newton Street, Manchester.
1881 Middleton, Thomas C., 29, Princess Street, Manchester.
1872 Montgomery, Robert, Bank, St. Ann Street, Manchester.
1890 Moodie, John, Williams Deacon and Manchester and Salford Bank, C.-on-M.
1871 Morell, J. C., c/o W. W. Tomlins, 4, St. Ann's Square, Manchester.
1875 Moxon, Thomas B., Lancashire and Yorkshire Bank, Manchester.
1877 Murray, Adam, Hazeldean, Kersal.
1898 Murray, James, Disley, near Stockport.

1894 Nairne, W. H., 10, Marsden Street, Manchester.
1891 Naylor, James, 16, Nicholas Street, Manchester.
1891 Needham, C. T., Needham's Chambers, Old Millgate, Manchester.
1896 Needham, John, Old Millgate, Manchester.
1894 *Neild, Charles, Chapel Walks, Manchester.
1894 *Neild, Edward, Chapel Walks, Manchester.
1867 Neild, Alfred, Dingle Bank, Bowdon.
1894 Nicholson, W. H., 100, Sloane Street, Moss Side.
1898 Niven, Dr. Jas., Officer of Health, Town Hall, Manchester.
1878 *Nix, E. W., 77, Lombard Street, London, E.C.
1894 Nixon, Alfred, 7, Oak Road, Sale.
1876 Nuttall, Harry, Messrs. J. A. Bremner and Co., Albert Street, Manchester.

1876 Odgers, James, Co-operative Insurance Society, City Buildings, Corporation Street, Manchester.
1898 Oppenheim, F. S., Duchy Chambers, Clarence Street, Manchester.
1881 Oppenheim, S., York House, Oxford Road, Manchester.
1890 Ostler, James, 52, Spring Gardens, Manchester.

1897 Peel, F. W., The Bank of England, Manchester.
1894 *Philips, Herbert, J.P., Sutton Oaks, Macclesfield.
1879 *Philips, William M., 35, Church Street, Manchester.
1894 Platt-Higgins, Frederick, M.P., Holmleigh, Bowdon.
1897 Plummer, Henry, 38, Fountain Street, Manchester.
1894 Povah, Charles, 18, Exchange Street, Manchester.
1876 Pownall, George H., Bank, Mosley Street, Manchester.
1896 Pownall, A. H., 42, Spring Gardens, Manchester.
1898 Preston, E. H., 34, Brazennose Street, Manchester.
1894 Provand, A.D., M.P., 2, Whitehall Court, London, S.W.

1896 Ralphs, Samuel, Queen's Buildings, St. Peter's Square, Stockport.
1898 Ramsbottom, Robert, 81, Market Street, Manchester.
1886 Renton, John, 30, Cross Street, Manchester.
1876 Reyner, Arthur E., Ashton-under Lyne.
1880 Reynolds, J. H., Manchester Technical School, Manchester.
1895 Rhodes, George, 78, Cross Street, Manchester.
1892 Rhodes, John R., Gorphwysfa, 1, Deyne Avenue, Rectory Lane, Prestwich.
1879 Roberts, John William, 21, Portland Street, Manchester.
1873 Rooke, George, Moorside, Sale.
1894 Ross, Frederick B., Cromford Court, Manchester.
1894 Rothwell, William Thomas, J.P., Newton Heath, Manchester.
1896 Russell, G. H., 1, Fennel Street, Manchester.

1898 Scott, A. H., Plymouth Grove, Manchester.
1894 Scott, C. H., Heaton Mersey.
1871 Scott, C. P., M.P., *Guardian* Office, Manchester.
1878 Scott, Frederick, 33, Brazennose Street, Manchester.
1897 Simpson, Wm., 8, Minshull Street, Manchester.
1892 Smethurst, Thomas, 26, Pall Mall, Manchester.
1877 Sowerbutts, Eli, c/o J. D. Wild, Grassbrow House, Blackley, Manchester.
1894 Spencer, Reuben, J.P., Whalley Range, Manchester.
1888 *Stevens, Marshall, Bolton Lodge, near Eccles.
1888 Stevenson, Charles, 9, Albert Square, Manchester.

1888 Stockwell, Richard B., 52, Brown Street, Manchester.
1876 Sutcliffe, John, Union Bank Limited, Norfolk Street, Manchester.
1879 Sutton, Charles W., Reference Library, King Street, Manchester.
1897 Swallow, J. H., Oak Cottage, Pendlebury.

1887 Tattersall, William, 22, St. Mary's Gate, Manchester.
1877 Taylor, G. H., Holly House, 235, Eccles New Road, Salford.
†Taylor, J. E., *Guardian* Office, Manchester.
1897 Thackray, Edward, City Treasurer, Manchester.
1892 Thewlis, Jas. H., 17, Church Street, Manchester.
1883 Tipping, William, District Bank, Spring Gardens, Manchester.
1885 Tucker, Thomas Ford, 100, King Street, Manchester.

1896 Walmsley, F., 52, Corporation Street, Manchester.
1876 Watts, W. H. S., Rose Lea, Longfield, Urmston.
1870 *Welton, Thomas A., 22, Palace Road, Streatham Hill, S.W.
1894 Whitelegg, James, 109, Princess Street, Manchester.
1895 Whittaker, John, Wilpshire, Blackburn.
1894 Wigley, J., 71, King Street, Manchester.
1865 *Wilkinson, Thomas Read, Vale Cottage, Knutsford.
1897 Williams, John, Assistant Treasurer, Town Hall, Manchester
1894 Williamson, George, 37, Brown Street, Manchester.
1894 Womersley, Frederick, 1, Piccadilly, Manchester.
1874 Woodhouse, S. T., Queen's Building Society, John Dalton Street, Manchester.
1895 Woodhouse, Wm., 17, Cooper Street, Manchester.
†Worthington, Thomas, 46, Brown Street, Manchester.
1894 Wyatt, Chas. H., Chelford.

NOTE.—*Those marked thus * are life members.*
Those marked † were elected prior to 1860.

CORRESPONDING MEMBERS.

Alexander, J. F., Rose Ville, College Road, Reading.
Bodio, Signor Louis, Rome.
Boissevain, G. M., Amsterdam.
Bourne, Stephen, Wallington.
Chervin, Dr. Arthur, Paris.
De Foville, M. Alfred, Paris.
Engel, Dr., Statistical Department, Berlin.
Erben, Professor Joseph, Statistical Bureau, Prague.
Gibson, A. H., Crofton, near Wellington, New Zealand.
Greven, H. B., Leyden.
Hansen, Professor Falbe, Copenhagen.
Hayter, Henry H., Govt. Statist, Melbourne.
Körosi, Herr Josef, Buda-Pesth.
Leggett, Capt. R. A., Tunbridge Wells.
Level, Gen. Andres A., Venezuela.
Palgrave, R. H. Inglis, Great Yarmouth.
Tatham, Dr. John, Somerset House, W.C. 1894.
Westminster, The Cardinal Archbishop of.

N.B.—Members are requested to inform the Secretaries (at 63, Brown Street, Manchester) of any change in their address.

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JOHN HEYWOOD, Excelsior Printing and Bookbinding Works, Manchester.

The Manchester Statistical Society.

ESTABLISHED 1833.

LIST OF PAST PRESIDENTS.

Benjamin Heywood	1833-4
Lieut. Col. Shaw Kennedy	1834-6
Rev. Edward Stanley	1836-7
Thomas Ashton	1837-9
Shakespeare Phillips	1839-41
William Langton	1841-4
John Roberton, M.D.	1844-7
Samuel Robinson	1847-9
Henry Houldsworth	1849-50
William Neild	1850-51
Robt. N. Philips	1851-3
James Heywood	1853-5
William Metcalf	1855-7
Rev. C. J. Richson, M.A.	1857-9
Daniel Noble, M.D.	1859-61
Edward Herford	1861-3
Alfred Aspland, M.D.	1863-5
David Chadwick	1865-7
William Langton	1867 9
William Stanley Jevons, M.A.	1869-71
John Mills	1871-3
Dr. John Watts	1873-5
Thomas Read Wilkinson	1875-7
Thomas Dickins	1877-9
Elijah Helm	1879-81
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William Fogg	1892-4
W. H. S. Watts	1894-6
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EXTRACTS FROM THE RULES

OF THE

MANCHESTER STATISTICAL SOCIETY.

ESTABLISHED 1833.

PREAMBLE.—The objects of the Manchester Statistical Society are—The collection of facts illustrative of the condition of Society, and the discussion of subjects of Social and Political Economy, totally excluding party politics.

INTERPRETATION CLAUSE.—In these Rules the masculine shall include the feminine gender.

RULE 1.—Every ordinary member shall pay an annual subscription of half-a-guinea, or may at any time compound for his future subscriptions by paying at once the sum of five guineas. Every new member shall, on election, pay an admission fee of half-a-guinea; but members elected at the last ordinary meeting of any session shall not be charged with the annual subscription for that session.

2.—The annual subscription shall be due in advance on the 1st of October in each year.

3.—Gentlemen distinguished for their ability and zeal in cultivating Statistical inquiries, and living at least twenty miles distant from Manchester, may be admitted as corresponding members. No subscription shall be required from them.

4.—The ordinary meetings shall be held during the Society's session, viz., from the 1st of October to the 1st of July, with intervals not exceeding six weeks between each meeting.

18.—Members are expected to communicate to the Society papers on Statistics, and on subjects of Social and Political Economy, particularly on such as may be of local interest; and the writer of any such paper shall be required to submit it to the Council *a fortnight* before the meeting at which it is to be read. All papers read before the Society shall be deemed to be its property.

NOTE.—The Society's Library is by arrangement with the Corporation of Manchester deposited at the Free Reference Library, King Street, and is open daily. Members desiring to borrow books can do so on obtaining an order from one of the Honorary Secretaries, viz., F. E. M. Beardsall, 63, Brown Street; Theodore Gregory, 32, York Street.